

THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer • TRANSPORT • The Railway News
The Railway Times • Herapath's Railway Journal • RAILWAY RECORD.
RAILWAYS • ESTABLISHED 1835 • THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY

AT

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"

Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:

British Isles and Abroad.....£2 5s. 0d.
Single CopiesOne Shilling

Registered at the General Post Office, London, as a Newspaper

VOL. 75 No. 11

FRIDAY, SEPTEMBER 12, 1941

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DISPATCH OF THE "RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 of 1940, and No. 359 of 1941

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:—

Mondays to Fridays - 9.30 a.m. till 5.0 p.m.

The office is closed on Saturdays

The Cost of Time Recovery

AN unusual argument, but one which, nevertheless, we have heard, against our advocacy of the recovery of lost time by enginemen, is that the cost in wear and tear of the locomotive and in fuel consumption is not justified by the result. For example, where measurements have been taken on trial runs, it has been found that the recovery of the 10 min. on a 250-mile journey booked at about 55 m.p.h., with a fairly heavy load, involved an increased coal consumption of 600 lb., or a little over $\frac{1}{4}$ -ton. This certainly seems a high figure, but, if it is placed against the unassessed cost of the delays which otherwise would have been suffered by the 300 or 400 passengers on the train, it may well have been a small enough price to pay. If, in addition, delays to other trains caused by the late running of this one express, and the repercussions in the wasted time of passengers, and in overtime pay to railway staff, be taken into account, the cost would probably be found trivial. There are other factors, incapable of measurement, but none the less important, such as the effect on nerves of the anxiety about missed or late appointments, which involves a human wear and tear that might be said easily to balance any extra mechanical wear and tear on the locomotive and railway equipment. We have, indeed, never heard a really convincing argument against the proposition that, when a train is delayed, one of the first duties of the enginemen and other staff concerned should be to get it back in the quickest possible time to its scheduled path.

Locomotive Mileage

The recent completion by one of the two streamlined L.N.E.R. 4-6-0 locomotives built for the East Anglian service of a mileage of 100,103 in 452 days, between successive general overhauls, though an admirable performance, could not be regarded as a record. Its merit lay chiefly in the fact of its achievement in wartime, when normal standards of maintenance and of fuel are difficult to obtain. In days gone by the L.N.W.R. Webb compound locomotive *Teutonic* is claimed to have run 100,000 miles in her first year of service, and *Charles Dickens*, the famous 2-4-0 of the "Precedent" class, completed 500,000 miles between February 2, 1882, and September 17, 1886, and a full million miles in 9 years, 219 days—that is, an average of more than 100,000 miles a year for a decade. But conditions were very different in those early days. Even allowing for differences in dimensions, relatively lighter loads and lower scheduled speeds meant that locomotives had not to be worked as hard as they are today; also engine crews generally had their own engines, and the care that they bestowed on their charges helped materially in keeping the latter out of the shops. Further, shed staffs were larger in proportion to the number of engines housed at each shed than they are in these days, and particularly in wartime. Generally speaking, however, 100,000 miles between overhauls is not an exceptional mileage in modern conditions, though such figures may vary greatly according to the equipment at each shed, the larger sheds being able to do a considerable extent of repairs without remitting a locomotive to plant for general overhaul. It need hardly be added that the relative competence of shed management is not without its material influence on the mileage results achieved.

Nitrate Railways Co. Ltd.

It has been known for some time that the acquisition by the Chilean Government of the lines and property of the Nitrate Railways Co. Ltd. has been under consideration, and it is now announced that a decree has been signed for the expropriation of the company's undertaking. An indemnity, the amount of which has yet to be determined, will be paid, and the whole transaction is subject to ratification by the Chilean Congress. Full terms of the expropriation have not been received in London, but it is the intention of the directors to give shareholders complete information as soon as practicable. When this will be it is impossible to say, but it is not unlikely that the discussions in Congress may be protracted. It is equally improbable that the indemnity

will be forthcoming other than in some form of Chilean currency obligation. The Nitrate Railways Co. Ltd. was formed in 1882 and operates 387 miles (including sidings) in the nitrate district of Tarapaca, Chile, under various concessions. That from Pisagua to Negreiros reverts to the Government on May 18, 1957, and those relating to lines connecting La Noria and Negreiros, and branch lines on the Pampa revert to the Government on April 26, 1974. The concession from San Pablo to Lagunas is held in perpetuity; that from Iquique to La Noria reverted to the Government on July 27, 1936, but the line is operated by the company under a rental arrangement. The issued capital is £3,485,430 and for 1940 the dividend on the ordinary and preferred ordinary shares was $1\frac{1}{4}$ per cent. less tax for the third successive year.

Smoke Deflectors for Locomotives

The paper by Mr. H. Holcroft, of which an abstract appears at page 259, dealt with an important if controversial subject which has come rapidly to the fore with the development of large and efficient locomotives. In the course of the discussion the merits and demerits of the capuchon, the term used for describing the lip or vertical projection of the front half of the chimney top, and at one time much used, was debated. There appears to be some doubt as to the exact purpose of this fitting, some of those present at the meeting expressing the view that its general purpose was that of avoiding down-draught, rather than of lifting the smoke. The president, in winding up the discussion, said that in his opinion the question of down-draught was not a serious one at all, for it had been shown that locomotives could run with a completely open chimney and no exhaust, without showing a tendency to throw the fire back through the firebox door. There was a tendency during the discussion to intermingle, if not to confuse, the purpose of streamlining with that of smoke lifting, but when the various methods and layouts have been studied there is seen to be reason for this. Indeed, the meeting was reminded that the late Sir Nigel Gresley, the pioneer in this country of the streamlined locomotive, began with his 4-6-4 experimental 4-cylinder compound locomotive which, with an expected very low exhaust pressure, might be presumed to require special measures to keep the exhaust clear of the driver's outlook. In these times, when opportunities of discussing papers at the meetings of technical institutions are so few and far between, the one prepared by Mr. Holcroft afforded a welcome break.

G.I.P. Locomotive Outstation Control

The locomotive running shed at Bhusaval is the largest of its kind on the G.I.P. Railway and a description of the measures adopted since the shed was remodelled in 1934 appears in a recent Indian Railway Quarterly Technical Bulletin. Dealing with the subject of outstation detention, the author, Mr. W. L. Kermack, who is in charge of the Bhusaval division, refers to the necessity of having a check on the position at outstation depots to see that the traffic controllers are not detaining engines unduly, so that the speeding up of out-turn at the home shed shall not be offset by detention at outstations. Each depot is, therefore, required to submit a detention statement showing the hours engines are detained, and, if these are abnormal, the Movement Branch is then consulted with a view to having engines returned. More especially is this the case with heavy and unbalanced traffic, so as to ensure that all engines shall pass through the home shed without congestion, delay or dislocation, and also receive due attention and repairs at the home depot; the minimum time for which under temporary peak traffic conditions is eight hours. The locomotive foreman is provided with a visual control board which shows the location of every engine in the shed at eight o'clock each morning, also the number of engines absent from the shed on the three sections. It also shows the number of freight engines due in the shed and the trains ordered. From this, in consultation with the Mechanical Department foreman, he decides which engines may be given preference for repairs

and whether the traffic demands a diversion of engines nominated for each section from one to another, thus enabling the locomotive foreman to ascertain the exact position ruling at a given time and arrange the work accordingly, expediting repairs, stepping up or diverting engine power, sending engines for overhaul or taking others out of the stored list, as may be required.

Railway Ambulance Activity in N.S.W.

The New South Wales Railways Ambulance Corps is a very flourishing institution. Its initiation was the work of Mr. C. A. Goodchap, a former Commissioner for Railways, who, as long ago as 1882, realising that there was a demand among the men for such a corps, published and distributed among them the text-book "Accidents and Their Treatment." The staff had asked for the installation of ambulance equipment in brake vans, and in 1885 the first set of equipment arrived from London, and almost simultaneously a revised edition of the text-book was brought out and handed over to the employees. The first first-aid examinations were held in March, 1886, and 33 students were successful. Within 10 years the membership of the corps exceeded 1,000 and today it has 22,312 members, or 54.5 per cent. of the total railway staff. There are now 74 qualified women members, and altogether 400 class instructors organised 554 classes during 1940. Since 1891 competitions have been held regularly, and in 1900 district competitions were inaugurated; country competitions have been organised during the last two years. Silver medals are awarded for continued success in examinations, and a gold life medal is awarded after 11 years' proficiency. Woodward memorial medals and the Milne Cup are awarded annually for district competitions. The corps is now helping to train A.R.P. personnel and is providing valuable recruits for the Army Medical Corps.

New Ice Breaker for the Danish State Railways

As reported on page 405 in THE RAILWAY GAZETTE of March 22, 1940, the unusually severe winter of 1939-1940 caused great dislocation of the Scandinavian train ferry services. Working over the Great Belt became unsafe on January 20, 1940, and remained so until March 31; it was totally interrupted from February 1 to 26. Air services were eventually used to ease the situation, carrying passengers and goods between Copenhagen and Odense. Passengers walked and cycled over the ice at one period, and even motor vehicles were run, recalling the time in 1658 when Charles X crossed with troops from Funen to Lolland. The State Railways ice-breaking vessels, intended to assist in keeping the ferry routes open, the most powerful of which developed 3,500 h.p., had to be sent away to serve in the Kattegat and Oresund, to prevent the stoppage of certain essential overseas goods services. These difficulties had led the management to obtain sanction for a new ice-breaker, for the exclusive use of the railways, to keep their ferry routes open, or itself serve as a means of communication in very difficult periods. The principal dimensions will be: length, 62 m. (203 ft.); greatest breadth, 16.5 m. (53 ft. 8 in.); draught forward, 5.4 m. (17½ ft.); draught aft, 5.9 m. (19 ft. 4 in.); indicated horse-power, 6,000; propulsion by 3 screws (1 forward and 2 aft), each driven independently by triple-expansion engines, supplied with steam from four oil-fired boilers. Parcels and goods will be carried on the main deck, and a number of conveyor trucks will be provided at the landing stages to facilitate rapid loading and unloading. The passenger saloon will be over this deck and seat about 600 persons, with the usual modern conveniences and restaurant facilities.

The Future of the Wabash

Complications in American railway ownership are being brought into prominence by the fight which is now developing between the influential New York Central System and the Pennsylvania Railroad over the latter's application to take over control of the Wabash Railroad. The New York Central opposition is based on the fact that the Pennsylvania

owns 30.2 per cent. and the Wabash 21.4 per cent. of the voting stock of the Lehigh Valley Railway, while the Wabash also practically owns the Ann Arbor, so that in this way the Pennsylvania would be in a position to control considerable sections of line in the heart of New York Central territory. This, the latter company maintains, would be contrary to the principle laid down by the Interstate Commerce Commission that the consolidation of the railroads should be directed towards the formation of compact and well-balanced competitive systems. A further ground of objection is that the Pennsylvania, directly or indirectly, owns or controls substantial holdings of the voting stock of the New York, New Haven & Hartford, the Boston & Maine, the Norfolk & Western, and other lines, the New York Central evidently scenting in this latest proposal something in the nature of "encirclement." The Pittsburgh & Lake Erie RR., a subsidiary of the New York Central, is associated with the latter company in this intervention. The principal main lines of the Wabash run from Chicago to St. Louis (286 miles), St. Louis to Detroit (488 miles), used by the Pennsylvania between Fort Wayne and Detroit for its Detroit Arrow $4\frac{1}{2}$ hr. service between Chicago and Detroit, and St. Louis to Kansas City, 279 miles.

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The Boiler and Its Work

There is sometimes a tendency to suggest that the small locomotive boilers of earlier times were comparatively more efficient than the much larger and heavier boilers of modern practice. This is one of those matters that must be viewed in its proper perspective, otherwise there is little point in discussing it. Attention was recently drawn by a competent observer to the excellent work done by some small-boilered locomotives to which was allotted the task of hauling express trains running in the Anglo-Scottish services. These engines had 18 $\frac{1}{2}$ in. by 26 in. cylinders and the steam pressure was 140 lb. per sq. in. The boiler had a diameter of but little more than 4 ft., and the grate area approximated to the modest figure of 16 sq. ft. A boiler of such proportions would, it might be conjectured, be hard put to it to provide an adequate volume of steam for cylinders of what was formerly considered a large size, and the tractive force of the engine would necessarily be a moderate one; yet, due no doubt to the admirable arrangement of the boiler, free water circulation and well-disposed heating surfaces, there was seldom if ever any difficulty because of shortage of steam. In the modern locomotive which has to deal with very much heavier train loads on much more exacting timings, a large superheated and high pressed boiler is an essential factor, the steam and water consumption rates are very much in excess of what formerly sufficed, and the whole problem of boiler design and proportions has assumed a character that was probably never contemplated by the locomotive engineers of, say, two generations ago.

♦ ♦ ♦ ♦

Luggage in Advance

Before the war we felt guilty if we travelled in company with our luggage, for the greater convenience to ourselves and to the railways if we sent it in advance was widely advertised. Today we feel equally guilty if our luggage goes ahead. We know from railway announcements that articles forwarded by passenger train may have to be handled by women porters, and while the official picture represents such employees as being quite capable of grappling with a dainty cardboard box, we are urged to spare them the manipulation of heavier objects. Indeed, we should no more ask the woman porter of the picture to handle our trunks and suitcases than we should expect an electric canoe from the upper reaches of the Thames to perform the work of a dockland tug. Yet our scruples are not universal, for at any station we can observe barrows laden with bulky luggage whose owners are clearly not in attendance, or at least not keeping it under the anxious surveillance which we feel called upon to exercise. The just man's course must be to support the trials of taking his luggage with him, but evidently many prefer to endure the qualms of conscience after it has been safely delivered.

First Class

IN these days there is tendency to regard the first class passenger as a person possessed of no rights other than that of paying a higher rate for what now are largely non-existent travelling privileges. As in the last war, clamour is being heard for the abolition of the superior class (of which the Parliamentary debate reported in our August 15 issue gives evidence), in defiance of the fact that no country in the world, not even the U.S.S.R., has succeeded in abolishing class distinctions on the railways; and in wartime the maintenance of such a distinction is no less necessary than in peacetime. The length of time now occupied on journeys compels many business men to work *en route*, and they pay the higher fare in the hope of securing some privacy, and, above all, quiet in which to concentrate on what they are doing; officers are entitled to expect accommodation separate from that occupied by other ranks; invalids who pay extra for a little comfort may also reasonably look forward to receiving something in return. Yet public announcements which have been made in Parliament and elsewhere, as to the filling up of first class compartments, encourage many travellers holding third class tickets to take the law into their own hands, and they do it in no uncertain fashion. Our experience in constant travelling by trains is that, so far from the "fear" of the third class passenger of taking a seat in the superior class, knowledgeable long-distance third class passengers—both Service and civilian—make straight for first class compartments, assuming that their chances of being ejected or made to pay the higher rate, in the event of third class room being available elsewhere in the train, are remote. Third class passengers joining at intermediate stations, unless they can find seats in the coach that immediately faces them when the train stops, will frequently enter the nearest first class compartments without any attempt to explore more distant parts of the train in search of seats, with the remark, "Oh, it's all the same now."

It may be granted that in present travel conditions the problem is one of great difficulty. Many passengers, even if they have seats, appear to prefer standing in corridors for large parts of their journeys, and this corridor congestion makes movement through a train of, say, fifteen coaches and more a tiresome business, especially for a Serviceman with full equipment. Ticket collectors on some of the more crowded routes incline to take the line of least resistance, and—especially in view of the public pronouncements mentioned—to leave third class passengers in the firsts, even though scattered third class seats may be available elsewhere in the train. In the circumstances the collectors command a good deal of sympathy, for in the enormously long and crowded trains of today they have much to do in a minimum of time, and can hardly be expected to supervise extensive transfers of passengers from one class to the other. Nevertheless the problem is not one that should be allowed to drift, for there are ways in which the present position might be improved. One is in the marshalling of the trains, by keeping as far as possible all the first class accommodation together at one end of each train, with the restaurant and kitchen accommodation separating it from the third class. The obvious objections to this proposal are that so much corridor first class accommodation is in composite coaches, that long distances have to be traversed through the third class in order to reach the restaurant cars, if the thirds are on one side only of the cars, and also because so many trains have two or more through portions, in all of which first class compartments must be provided. In these days when the best third class accommodation so closely resembles first in appearance, the clearest possible distinction of the latter is needed, both inside and outside the compartments, and here the L.N.E.R. plan of the large white figure "1" pasted on all first class windows is useful. More use might be made than at present, also, of the loudspeaker systems installed at terminal and junction stations in advising passengers on the platforms as to where the most room in an incoming train is likely to be found, so that they may mass at that end of the platform. Such information is generally known to the station staff, and if not, it is a simple matter to telephone it from the preceding stop. At some important stations, especially on the Southern Rail-

way, this is a regular and most commendable practice, and we have heard announcements at L.M.S.R. stations of the composition of approaching trains, but these have usually been confined to the order in which the various portions of the trains concerned are marshalled. Any successful efforts so made to mitigate the weariness of wartime journeys would undoubtedly be appreciated and remembered with thankfulness after the war, when railway goodwill may be once again at a premium. Although we have made a few tentative suggestions above, we are not unmindful of the importance of the principle that the persons best qualified to solve a problem are those who are in daily contact with its factors. They are, or should be, the experts, and in this particular case it might be well worth while to put the onus of solution on to the members of the station and traffic staffs, instructing them to try, with due discretion, any methods which their experience might suggest to be effective towards the desired result. For the purpose they should be given local authority to devise and test their own methods, and report upon them periodically, with particular reference to how far they appear to succeed or fail. But given such local authority, their responsibility for achieving the desired result should be emphasised.

....

Pennsylvania Electric Locomotives

A PART from a few 2-Bo-2 locomotives and older freight locomotives with two motors and rod drive, the entire stock of main-line electric locomotives of the Pennsylvania Railroad is composed of either the 2-Co-2 Class "P5A" nominally used for freight traffic and geared for a top speed of 70 m.p.h., and the "GG-1" class of 2-Co+Co-2 locomotives geared for a top speed of 100 m.p.h. Despite the ideas of great increase in size and power which might be obtained by considering a six-motor articulated locomotive against a three-motor rigid-frame design, the continuous rating has not gone up in proportion to motor numbers. To begin with the "P5A" has an adhesion weight of 229,000 lb. and an average load per driving axle of 76,300 lb., whereas the "GG-1" has the much lighter average driving-axle load of 50,500 lb., which should ease considerably the track stresses at high speeds. The starting tractive effort of the "P5A" is 57,250 lb., and the continuous rating figures are 3,750 h.p. and 28,700 lb. tractive effort at 49 m.p.h. The corresponding figures for the "GG-1" are 4,620 h.p. and 17,300 lb. tractive effort at 100 m.p.h., and the starting effort is 72,800 lb. But the maximum output of the "GG-1" is very much higher than the continuous rating, and we believe that the design has a short-time capacity of about 9,000 h.p.

....

Canadian National Telegraphs

SIXTY years ago in August the Great North Western Telegraph Company (Canada) opened its offices for public business, and the occasion has been taken by the *Canadian National Magazine* to review briefly the development of the telegraph in the Dominion. This did not mean that the telegraph was new to Canada, nor that adequate telegraphic facilities were not previously available. The incorporation of the Great North Western grew out of the difficult financial conditions of two telegraph companies which had already been working for many years. More than a generation before the incorporation of the Great North Western, the Toronto, Hamilton & Niagara Electro-Magnetic Telegraph Company had opened its head office, at St. Lawrence Market Square, Toronto, in 1846, and had wired its initial message to Hamilton. A year later the Montreal Telegraph Company opened a single line between Toronto and Montreal, and, in 1852, the pioneer Toronto, Hamilton & Niagara Company sold out to the bigger competitor; Toronto thus lost the headquarters of the telegraphic industry for almost 30 years. A couple of years before the amalgamation of Canada's first two telegraph companies, a third was formed in Montreal. It was known as the Dominion Telegraph Company, and the Great North Western Telegraph grew out of the incorporation of the Montreal and the Dominion Tele-

graph Companies into a single company, operating under a new charter.

Both of the former companies were successfully operated so far as public service was concerned. The Montreal Telegraph had expanded its service as far west as Winnipeg, and had 1,507 offices, more than 2,350 employees, and 20,479 miles of wire. The Dominion Telegraph operated 11,501 miles of wire, and had 608 offices, covering a territory from Quebec to Detroit. Both companies appeared to be operating upon a sound financial basis until 1878, when the Dominion Telegraph reduced its rates five cents an average message, resulting in a great curtailment of revenue. The Montreal Telegraph Company felt obliged to introduce a similar reduced rate, and its financial difficulties thereafter increased every year. The Montreal Telegraph was the first to succumb, and in 1880 it leased its wires to the Western Union under a guarantee of 5 per cent. to be paid to the shareholders. In 1881 Erastus Winman, then a well-known New York financier, succeeded in forming the new company, called the Great North Western, which leased both properties for 99 years, guaranteeing 8 per cent. on the stock of the Montreal Telegraph and 6 per cent. on that of the Dominion Telegraph.

The new management quickly discontinued unprofitable operation, and, at the end of 1884, the company had a pole mileage of approximately 18,174 miles, a wire mileage of 32,400, and some 1,900 offices. Subsequently, improvement in equipment permitted a substantial reduction in the upkeep of pole mileage, and other important operating costs were further reduced. With the incorporation of the Great North Western Telegraph Company, Toronto was selected as the headquarters, and a site was obtained at the corner of Scott and Wellington Streets. When, in 1921, the Great North Western became a part of the Canadian National Telegraphs, the old headquarters building still retained its official status; but with the growth of the Canadian National Telegraphs to be one of the great communications companies of the world, with 26,300 miles of pole mileage and 184,200 miles of wire, its requirements quickly outgrew the accommodation of the old "G.N.W. Building," and the Canadian National Telegraphs headquarters were moved to the National Building, Bay Street. The old building was not abandoned however, and it is still open for public business as a branch office, with an unbroken record of public service extending over sixty years.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

First Class on Suburban Trains

5, Hayeswater Circle, Davyhulme,

Manchester

September 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The cartoon by "Fougasse" on page 210 of THE RAILWAY GAZETTE of August 29 may be humorous, but unfortunately it is wide of the mark, judged by experience in Manchester.

I have seen suburban trains leaving one of the main stations here, with first class compartments empty, and passengers standing in the thirds. I have also seen first class compartments kept locked while third class compartments were being packed. Workers returning home after a long day on their feet, and soldiers, often travelling long distances on leave, are only too seldom permitted a well-deserved seat in the superior class.

Thousands of railway passengers in this part of the country have no doubt as to whether elimination of class in rail travel would add to their comfort, despite cartoonists and the senseless statements of transport officials.

Yours truly,

A. R. PRINCE

PUBLICATIONS RECEIVED

Civil Engineering Handbook. By Leonard Church Urquhart. London: McGraw-Hill Publishing Co. Ltd., Aldwych House, Aldwych, W.C.2, and New York. 9½ in. × 6 in. × 1½ in. 877 pp., illustrated. Price 35s. net.—The first edition of this handbook was reviewed on page 374 in the December, 1934, issue of our constituent, *The Railway Engineer*. In publishing the second edition the author has taken the opportunity to bring the text up to date, notably in regard to the modified steel and concrete specifications now in force, but in many other respects also. Moreover, some sections have been largely rewritten so as to enable a rearrangement of material to be made. Section 2, devoted to "Railway and Highway Engineering," is again mainly concerned with American practice and standards, but is full of valuable information, applicable with or without slight adaptation to all countries. In this section, the paragraphs devoted to "Reduction of Ruling Grade," "Elimination of Helper Grades," "Distance," "Curvature,"

and "Rise and Fall," epitomise some of the most important aspects of the theory of railway location, the "bible" of which subject, it may be well to recall, is Wellington's "The Economic Theory of Location of Railways," a work no railway survey officer ought to be without.

Practical Solution of Torsional Vibration Problems ; With Examples from Marine, Electrical, Aeronautical and Automobile Engineering Practice. By W. Ker Wilson. Volume II. Second Edition. London: Chapman & Hall Limited, 11, Henrietta Street, W.C.2. 8½ in. × 5½ in. × 1½ in. 694 pp. Illustrated. Price 42s. net.—First published as a single volume in 1935, this treatise has now grown to about twice its original size so as to necessitate two volumes. This expansion may be taken as an indication of the great attention that vibration problems have received during the last few years. Mathematics still plays a large part in the solution of all such problems, but

for the determination of periods, stresses, and other quantities of importance to the designers of really complex systems resort must often be made to experimental measurements, more especially of torsional displacements. The author describes much new apparatus for vibration investigations, and shows how it can be employed to obtain data for reliable stress and allied calculations. Very full consideration is given to torsional vibration damping devices and rotating pendulum vibration absorbers, and a special chapter is devoted to the dynamic characteristics of electric generators direct-coupled to internal-combustion engines. The old mathematical assumption of rigidity in rotating masses and in fixed mountings has been discarded, together with a lot of the false deductions of purely academic interest ensuing therefrom, and a treatment which takes into account the possibility of vibrations within vibrations has appeared instead. Of necessity the empirical method has had to be advocated for problems the complexity of which is such as to put out of court the possibility of arriving at a purely mathematical solution.

THE SCRAP HEAP

SAYING IT WITH MUSIC

At the Eire Broadcasting Station on Saturday, August 9, a short questionnaire on train working answered by Inspector Kenny of the Great Southern Railways was preceded by a record of the song "I Miss You in the Morning."

BOX RAILWAY TUNNEL

The Great Western Railway Company have arranged that all trains passing through the long Box tunnel shall, for the future, be lighted.—From "The Wiltshire Telegraph" of January 7, 1882.

A SEASON TICKET RECORD

Mr. William Meston, of Inverurie, has just renewed, for the sixty-third time, his annual L.N.E.R. season ticket between Inverurie and Aberdeen and has thus easily beaten the previous Scottish record held by Mr. Edward Brown, of Monifieth, Angus, who, in 1940, claimed a total of 50 years season ticket travel. It was in 1879 that Mr. Meston's daily journeyings began. It is estimated that he has now travelled over 600,000 miles with his season ticket.

RAPID TRANSIT

Two Smålanders, who had emigrated years before, one to the Northern, the other to the Southern States of the U.S.A., were in the train together from Gothenburg, revisiting their homes. The former expressed the opinion that the speed was miserable; "It's quite different in the Northern States: I've travelled on many lines there so rapidly

that the telegraph poles looked like a hedge." "That's nothing," retorted the other man, "Not long since I was getting into a train in the Southern States and the station official considering I was much too slow, pushed me violently into the carriage. Annoyed, I turned round to give him something for himself—and punched the man at the next station instead."—From "Nordisk Jörnbanetidskrift."

ECHO OF THE FEBRUARY BLIZZARD

An idea of the magnitude of the damage and dislocation caused to L.N.E.R. telegraph and telephone services by the blizzard that raged in North Eastern England last February is revealed by the fact that the work of repair has only just been completed. No fewer than 10,000 insulators and 4,000 miles of copper wire were required for the job of repair, which has been carried out continuously since February by the L.N.E.R. Engineer's Department, assisted by the military authorities.

February in Rio was at its sweltering worst; we had not been away from Brazil for over four years. The charm of the southern lakes in Argentina and the name Bariloche captivated the imagination. . . . We left Buenos Aires at 4.30 p.m., and were due at our destination 28 hours later. Just after a good breakfast in the restaurant car, the train pulled up at Patagones, where we were to change carriages. We hoped the change would not be for the worse. Imagine our surprise when we saw on

the other side of the platform a perfectly beautiful stream-lined, air-conditioned, diesel train, with its pale blue and grey exterior and its fresh green interior, glistening in the morning sun; a vision of modern elegance and efficiency which seemed strangely out of place in that barren-looking wilderness. It sent the holiday thrill soaring up to a highly satisfactory level. The saloon cars were spacious and immaculate and the single track along which we were soon streaking was amazingly smooth. Banished completely was the dust. The smooth-running efficient service on that pleasant train which runs to Bariloche three times a week augurs well for the successful manner in which the Argentine Government is developing the tourist amenities in its enchanting Lakeland.—Condensed from the "Anglo-Brazilian Chronicle."

HOW A LOCOMOTIVE IS MADE

A young lady recently visited the locomotive works and later told some of her friends how a locomotive is made.

"You pour a lot of sand into a lot of boxes," she explained, "and you throw old store lids and things into a furnace. Then you empty the molten stream into a hole in the sand, and everybody yells and swears. You pour it out and let it cool and pound it, and then you put it in a thing that bores holes in it. Then you screw it together and paint it and put steam in it, and they take it to a drafting room and make a blue print of it. But one thing I forgot—they have to make a boiler. One man gets inside and one man remains outside, and they pound frightfully; and they tie it to the other thing, and you ought to see it go!"—From the "Delaware and Hudson Bulletin."

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

SOUTH AFRICA

Purchasing Commission in U.S.A.

The Government has announced the establishment of a South African Purchasing Commission in the U.S.A. The commission will consist of representatives of the Director-General of War Supplies, the South African Railways and Harbours Administration, the Department of Posts & Telegraphs and of Public Works jointly, and the Department of Commerce & Industries. There will be established in the Union a Priorities Board consisting of one representative nominated by each of the following: The Minister of Finance, The Minister of Railways & Harbours, The Minister of Posts & Telegraphs and of Public Works, and the Transvaal Chamber of Mines, and any other person whom the Minister may appoint by reason of his knowledge of and experience in commercial, industrial or shipping matters to act as a member to assist the board in the performance of its functions.

Where the export of goods from the United States is subject to licence or permission from the Government of that country, and the acquisition thereof in the U.S.A. for export to the Union is dependent upon such goods being essential to the prosecution of the war or the maintenance of the life of the civil community in the Union on a wartime basis, application must be made to the board for certificates of such essentiality. The board will decide the order of priority in which contracts, indents, or orders should be placed, and will communicate such decisions to the commission with such information as to the relative urgency and the purposes for which the goods in question are required, as may be necessary for the purpose of obtaining export licences.

Functions of the Commission

The following will be the principal functions of the commission:—

The commission will co-ordinate orders to be placed on behalf of the Director-General of War Supplies, the Railways & Harbours Administration, Government departments and all other persons desirous of obtaining goods subject to export licence.

The commission will have power, with due regard to the conditions imposed by the Government of the United States and to the decisions of the board, to call for tenders or obtain offers and place contracts or orders for all goods required by those authorities, and to procure shipping freight therefor and determine the order of priority in which such goods shall be shipped.

The commission will act in collaboration with the British Purchasing Commission or similar body established in the United States by the Government of the United Kingdom, and will have the power to conduct negotiations with the appropriate Department of State of the United States, and in general, subject to the direction of the Minister or of the Minister Plenipotentiary of the Union of South Africa at Washington to take such action as it deems necessary to ensure the supply and shipment of goods essential to the prosecution of the war and the maintenance of vital industries and national undertakings in the Union.

CANADA

T. & N.O.R. Tries Lignite-cum-Coal

Mr. H. Cavanagh, General Manager of the Temiskaming & Northern Ontario Railway, announced on August 1 that tests conducted on his railway have shown that Northern Ontario lignite, mixed with coal, can keep steam in a locomotive satisfactorily under ordinary conditions, but this mixture will not be used regularly until further tests show whether its use is feasible and more economical than the use of coal. Mr. Cavanagh gave three reasons why the lignite-and-coal mixture will not be adopted by all T. & N.O. locomotives immediately, namely, because (1) the fuel-carrying facilities on most locomotives would have to be enlarged, as the mixture is more bulky than coal; (2) the mixture will burn only in engines equipped with mechanical or automatic stokers; and (3) a quick-mixing method will have to be evolved.

BRAZIL

National Department of Railways Formed

The Federal Inspectorate of Railways has been abolished by a Presidential Decree, and a new body, known as the Departamento Nacional de Estradas de Ferro, or State Railways Department, has been formed under the Ministry of Transport and Public Works. The prime functions of this new department are as follow:—

1. To take charge of the railways programme as outlined in the General Plan of National Railways, and study and propose measures for its realisation.
2. To frame rules, regulations, and general standards with which all railways must comply.
3. To superintend and administer the railways owned, controlled, or occupied by the Union.
4. To study and propose the concession of financial and administrative autonomy to the railways of the Union when and where such measure may be considered advantageous.
5. To study and recommend the leasing of Government railways to private concerns whenever such a measure appears advisable.
6. To inspect and audit the accounts of all railways not administered by the Union.
7. To propose, with all necessary justifications, the expropriation of railways which for any reason are no longer serving national interests and the territory they cover satisfactorily.
8. To re-examine old plans or make new ones, and estimates, for the construction of new lines, extensions, deviations, branch lines, sidings, and buildings on Government railways and consider plans made by private railways.
9. To organise and advise on all matters relating to accountancy and statistics on all railways.
10. To collect statistics relating to the consumption of railway material in order to facilitate its purchase in the country and abroad.
11. To establish forms for all railway reports.
12. To promote agreement between railways when the interests of one or more are in conflict.
13. To propose the fixing of zones of influence for the various railways so as to avoid competition.
14. To avoid tariff disputes.
15. To examine the activities of the Railway Clearing House.

16. To collaborate with all parties concerned for the better use of unproductive lineside zones.
17. To collect all possible information in regard to the financial and economical situation of the railways.

The department will be sub-divided into the following sections: Staff; Material; Estimates; Communications; Audit; Economic studies; Rates, fares and contracts; Statistical; Drawing Office; and Library.

The present Decree is effective from September 1, 1941, and Engineer Waldemar Luz has been appointed Director of the new department and resigned his post as General Manager of the Central Railway.

Central Railway

The Presidential Decree granting autonomy to this railway [announced in our issue of August 29—Ed., R.G.] is a lengthy document dealing principally with the legal aspect of the change-over from governmental control to autonomous working, the functions, obligations, and privileges of the railway. It also outlines in some detail the duties of the General Manager and the future status of the staff as compared with its previous status as civil servants. An important feature is that, as from 1942, the national budget will provide for a yearly subsidy equivalent to the total salary and wages bills, leaving receipts to meet working expenses, and maintenance and new works charges. No trade-union membership or activity on the part of the staff will be permitted. With such advantages, and freed from the bureaucracy of governmental and parliamentary procedure, this railway should enter upon an era of progress.

SPAIN

American Carriages for Portugal

The Commission sent by the Spanish Government to inspect the carriages supplied by the Budd Manufacturing Company of Philadelphia to the Portuguese Railways Company, has made a full report to the General Direction of the Spanish National Railways. The report, which is published in *Ferrocarriles y Tranvías*, is signed by the Chief Mechanical Engineers of the Northern, M.Z.A., and Western-Andaluces Railways, and the commission was accompanied by an engineer of the Delegation for the Acquisition of Rolling Stock. The signatories express the opinion that the carriages, with a tare weight of 29 tons, would not be as suitable for the Spanish railways as similar coaches of the German type, of 28 tons, especially as the latter could be constructed in Spain. Nor is the American decoration considered quite suitable. Upkeep would be cheaper, if it were not for the difficulty of importing spares. Lastly, the cost (about 1,300,000 escudos) would be prohibitive for Spain, especially as the German model could be constructed locally for half that cost. It has been suggested that one or more of the carriages might be sent to Madrid for exhibition. A description of these vehicles was published in THE RAILWAY GAZETTE of December 27, 1940.

SMOKE DEFLECTORS FOR LOCOMOTIVES

*Abstract of a paper by Mr. H. Holcroft to the Institution of Locomotive Engineers reviewing experiments made and devices adopted for avoiding obstruction to the locomotive cab outlook**

THE combination of the decreasing velocity of the initially vertical column of mixed smoke and exhaust steam from the chimney with the velocity due to the locomotive's horizontal movement produces a resultant which inclines more and more towards the horizontal, so that the emerging jet is bent immediately above the chimney, the bend becoming sharper with increase of engine speed. Eventually the discharge from the chimney just passes above the cab roof, and may, in some circumstances, not clear it, but beat down and obscure the outlook from the windows. It is to alleviate this condition that smoke deflector plates have been introduced.

At A (Fig. 1) a cone of steam and smoke is being discharged while the engine is moving very slowly, the velocity of the jet at various heights above the chimney being indicated to scale at *a*. When the engine is in motion a horizontal component for this speed is added, as in *b*, and the combination of the two velocities produces a resultant velocity which also represents the direction of the jet. The cumulative effect of the horizontal force is indicated by line B. If the power of the engine is reduced, the velocity at the blast pipe will be likewise reduced, and this is represented at *c*. If at the same time the speed of the engine is increased, the horizontal component is likewise increased, and the resultant is inclined more towards the horizontal, so that the line C is produced. It will be observed that the lower boundary of the discharge from the chimney gradually drops towards the level of the chimney top, and where the cab roof is at the same level there is the possibility of a part of the discharge not clearing the roof.

This diagram ignores a number of factors which should be taken into account, but it serves to show the tendency of the direction of the stream and to emphasise that the problem is one of relative velocities, that is, ratio of speed of engine to velocity of discharge at chimney.

Smoke deflector plates have become necessary because what was formerly a mere nuisance has now become intensified and in some cases reached a point when it is an intolerable strain upon the driver under the most unfavourable conditions, which fortunately only occur occasionally under a combination of circumstances. At the worst, both cab windows are completely obscured by a continuous cloud of steam, which also envelops the cab and makes any outlook over the sides impossible. The beating down of steam and smoke is not, however, a continual and daily occurrence. Normally the discharge from the chimney passes well above the cab roof, especially when the engine is being heavily worked, but interference with a clear cab view often occurs when running fast and with a low exhaust pressure, and the trouble is thus more acute with passenger than freight working.

In the author's experience the trouble is more acute with engines having a round-top firebox than those with the Belpaire firebox. The change from the round to the rectangular shape at the junction of barrel and firebox causes eddies which break up the stream, while the unbroken surface with the round-top firebox permits the stream to reach the cab window without interruption.

Apart from the conditions of working the engine, much depends upon the state of the atmosphere, as to pressure, temperature, humidity, force and direction of wind, and whether the wind is steady or turbulent. Then there are the surroundings through which the engine is passing, the ques-

tion of embankments, cuttings or level ground, contour of nearby land, presence of trees or buildings adjacent to the line, all of which have their effect.

Influence of Modern Standards

The next point is to consider the factors which have adversely affected the situation and compelled some alleviation in the case of certain engines built in recent years. To begin with, there has been a growth in size, the larger boiler diameter encroaching upon the cab windows, longer boilers increasing distance from chimney to cab, larger diameter of smokebox presenting greater frontal area to the atmosphere and at the same time reducing height of chimney above smokebox, higher boiler centre raising driver's stand on footplate relative to chimney top and bringing cab roof level with chimney. In addition, long-travel piston valves giving low exhaust pressures have reduced velocity of exhaust steam, and the increase in chimney diameter has reduced the velocity of the products of combustion into the atmosphere

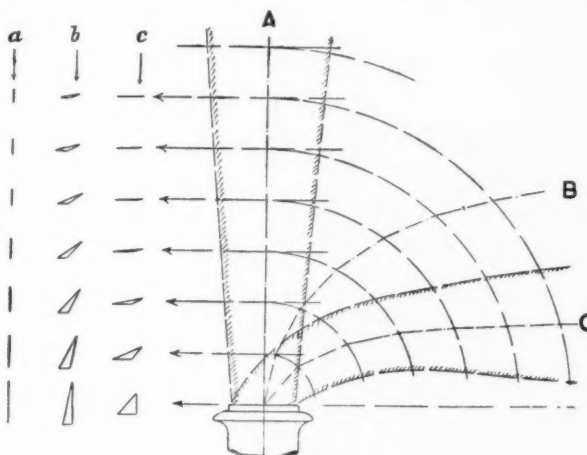


Fig. 1

and so altered the ratio of speed of engine to velocity of discharge, a point which was stressed in connection with Fig. 1.

The Great Western Railway has not found it necessary to adopt deflector plates on its modern engines and reasons for this can be looked for. In Fig. 2 the G.W.R. "Castle" class 4-6-0 is superimposed on the L.M.S.R. "Royal Scot" class of the same type and comparable power, and which it has been necessary to fit with deflector plates. It will be observed that the taper boiler permits of a smaller smokebox diameter which displaces less air and allows of a greater length of chimney above the smokebox, and this is enhanced

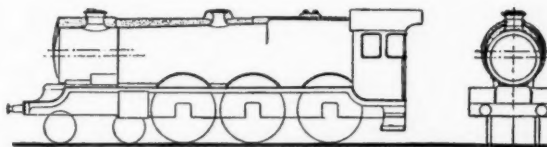


Fig. 2.—G.W.R. "Castle" class locomotive superimposed on L.M.S.R. "Royal Scot"

* At the Institution of Locomotive Engineers in London on September 3, 1941. The paper includes also an abstract of a report by Mr. F. C. Johansen covering wind tunnel experiments carried out in 1931 at the National Physical Laboratory, at the request of the Southern Railway. This is accompanied by a number of illustrations showing the effects produced during tests made with a wooden model of a Southern Railway "Schools" class engine.

by the G.W.R. loading gauge enabling greater height to be obtained from rail to chimney top, so that the discharge into the atmosphere can be made in a less disturbed region. Apart from this, most of the G.W.R. system is equipped with cab signalling apparatus and the driver can run "blind" as far as signals are concerned, since the indications given in the cab enable him to continue until he meets an adverse distant signal.

Some Unsuccessful Experiments

Among various schemes which have been tried without success was a semi-circular blower ring fixed at the back of the chimney for use when conditions were bad. This consumed a lot of high-pressure steam without producing any noticeable effect on the smoke trail. Another plan was to fill in the intervening space between chimney and dome with a casing of rectangular cross-section, the object being to eliminate the low pressure region behind the chimney created by its movement through the atmosphere and into which partial void the discharge from the chimney was drawn

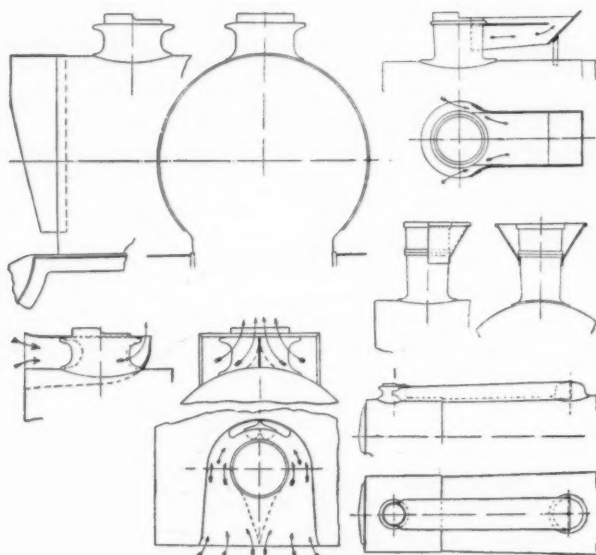


Fig. 3—A selection of unsuccessful deflectors

down on occasions. Yet another plan was to fix a shrouding on the front of the smokebox in the form of a semi-circular shelf, its object being to create a pocket of still air in front of the locomotive and thereby set up improved aerodynamic conditions. These devices are shown in Fig. 3.

While these various devices were being tried a satisfactory solution of the problem was reached on the German State

Railway by the fixing of a vertical deflector plate on the edge of the platform on each side of the smokebox and slightly in advance of it. These plates prevent the lateral spread of a portion of the air displaced by the locomotive when in motion, and by confining the air in a channel parallel to the movement, with escape at the back and top only, they divert the stream along the side of the boiler and keep the intervening distance to the cab windows clear of steam and smoke. While not fully effective under all conditions, these plates do improve matters and are well worth fitting on classes of engines where the smoke nuisance is really troublesome.

Southern Railway Modifications

The plates as first fitted to a "King Arthur" class 4-6-0 engine of the Southern Railway are shown in Fig. 4 at A. Although they gave good results they left little foothold for anyone to pass from the side platforms to the front of the engine, being fixed near the edge of the platform, while their height and the stays at the top partially obstructed the view from the cab. It was also necessary to take down the plates when drawing out piston valves for examination.

The plates were accordingly modified to the outlines shown in Fig. 4 at B and C, and set further inwards to give a better foothold. The results from pattern B were inferior to the others, and it is evident from this that the extension forward of the smokebox front has an important bearing on the effectiveness of the plates. Those of pattern C are a compromise between A and B, and while the results are not quite as good as with A, they overcame the objections raised to the first pair and represent the best all-round pattern. Suitable hand grips are provided to facilitate access to the front of the engine from the ground by way of the footsteps, while a section of the plate is removable to enable the piston valve to be withdrawn without taking down the whole plate. A slight inward rake is given to the plates in order to attach them directly to the handrails at the top. The plates as subsequently fitted to the S.R. "Schools" 4-4-0 class are shown by pattern D, and a similar pattern is fitted to the "Lord Nelson" 4-6-0 class. The catchment of air has been increased by setting the plates vertical and fixing them at the top by short stays clipped to the handrails.

Some Disadvantages

The fitting of smoke deflector plates is not without its disadvantages. They form an obstruction on the engine platform. If the plates are fixed at the extreme width no ledge at all is left as a foothold, and there is insufficient space to pass between the plate and the smokebox. On the other hand, if the plates are set a few inches from the edge of the platforms to leave narrow ledges for a foothold, some of their effectiveness is lost, as they present a narrower opening for the catchment of air. Another disadvantage is the partial obstruction to the driver's view from the cab, especially when the plates are high and set inwards at the top, instead of being wholly vertical or slightly inclined.

The fitting of plates also adds to the resistance of the engine, and less pull is developed at the tender drawbar.

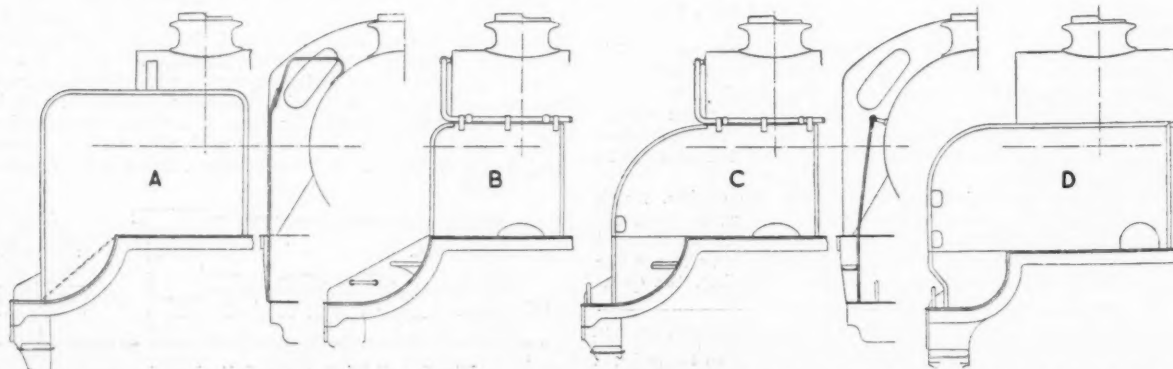


Fig. 4—Two designs of plates tried on Southern Railway "King Arthur" class 4-6-0 locomotives (A and C), and two (B and D) on "Lord Nelson" 4-6-0 and "Schools" 4-4-0 locomotives

Work is expended in deflecting the large volume of air, and careful tests on the P.L.M. Railway in France on engines fitted with the plates as against others not so fitted, showed that some 35 h.p. is absorbed at a speed of 60 m.p.h. Apart from practical objections, the mounting of large plates is to be regretted from an æsthetic point of view, as they detract from the appearance of the majority of locomotives.

An altogether different type of smoke deflector from those already described is that used on some American and Canadian railways, where a movable curved hood is mounted on the chimney top. This is air-operated by a servo cylinder, and is raised or lowered as required. Its purpose, however, is for use in tunnels where it is brought into operation in order to divert the exhaust steam, smoke and sparks into a backward direction, so that they do not impinge on the tunnel roof and spread, thus obstructing the driver's outlook. One form of the device is illustrated in Fig. 5. Another

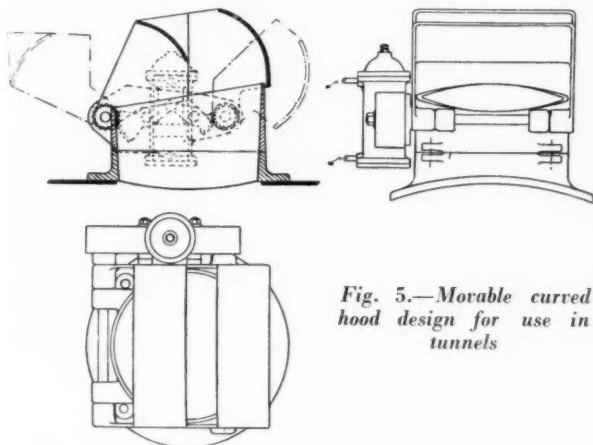


Fig. 5.—Movable curved hood design for use in tunnels

type consists of overlapping curved plates which form a right-angle bend in the raised position. When closed the plates drop together in front of the chimney, after the style of a venetian blind.

Streamlined Locomotives

In the special case of streamlined or semi-streamlined locomotives the problem of smoke lifting remains. The casings

adopted improve the aerodynamic form and so reduce air resistance, but consideration has to be given to the chimney and its surroundings. These engines often operate at higher speeds than the normal of express trains and so the ratio of the velocity of the efflux from the chimney to the horizontal velocity tends to decrease.

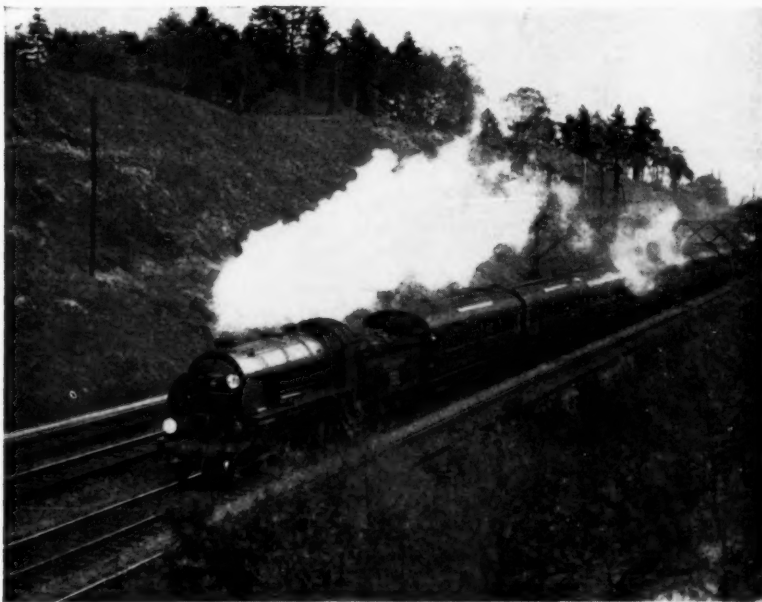
Wind tunnel experiments on models of locomotives without streamlining show that the entire upper surface is shrouded in eddies which trap the smoke and dissipate it comparatively slowly, due to the average air velocity over the boiler being reduced by the eddies and the crude shape of the boiler front. When streamlining is adopted these secondary effects disappear and the problem is then purely one of smoke lifting, or at the least, in preventing any downward tendency or spreading of the smoke trail.

The casing adopted by the L.N.E.R. is carried high enough to include the dome and is level with the cab roof. The front of the smokebox is inclined and slightly curved, and the chimney projects through the upper part of the slope and is flush with the casing at the back. There is thus a clean sweep from front to rear without obstruction. The L.M.S.R. arrangement is very similar, but the front is rather blunter in shape, with the consequence that the chimney projection is less. The German State Railway has a blunter shape still, and in this instance the chimney projects through a horizontal surface and wing plates have been added. In all these arrangements the cab roof is level with the casing and there are no projections to cause eddies in the stream of air passing along the upper surface of the engines.

American practice in streamlining tends more towards a casing which is brought level with the top of the boiler. The chimney, sandbox, dome, safety valve, etc., are screened by two parallel vertical plates running longitudinally from the smokebox front to the cab. In some cases the trough so formed is left open throughout and in others a horizontal plate completes the boxing in of the projections in rear of the chimney. The arrangement for smoke-lifting consists of a grilled opening in the forward end of the duct and a sloping plate behind the chimney. The French railways have also adopted a pair of longitudinal plates to form an open duct on top of the boiler casing. These are stated to be very effectual in preventing any spreading of the smoke, and experience in Holland supports this. The Huet deflector, in use on French railways, is intended primarily as an alternative to streamlining, a nest of curved plates in front of the smokebox directing the air flow over the boiler surface in horizontal streams. The outer plates of the set are specially curved and positioned for the purpose of smoke lifting.

(Discussion reported at page 267)

Southern Railway express hauled by a "King Arthur" class 4-6-0 locomotive, showing the effectiveness of the smoke deflecting plates in lifting the exhaust clear of the cab. The scene is in Winchfield cutting, on the South Western main line, and the engine is No. 752, "Linette"



British Railways and the War—84



Above: View of an L.N.E.R. marshalling yard from the top of the hump, showing wagons running into various sidings and the control tower in the middle foreground



Left: Signalman in the control tower setting siding points for wagons as they come down the hump. Mr. George Mills, Divisional General Manager, Southern Area, L.N.E.R. (left) and Mr. J. H. Potts, President, National Union of Railwaymen, watching operations

Right: Wagon running through hydraulic rail brake at the foot of the hump. The next wagon is seen proceeding by a different route to one of the other rail brakes



RAILWAY NEWS SECTION

PERSONAL

The Minister of Supply has appointed Mr. J. C. Patteson, Controller-General of Transportation, to be Director-General, Supply Services. He will continue to be responsible for transport and storage and will also co-ordinate the flow of special manufactured stores. He will control all Ministry of Supply motor vehicles and the distribution of petrol, and will supervise the department of the Controller of Building Construction.

Mr. A. Forbes Smith, Assistant Controller-General of Transportation, has been appointed Deputy Director-General, Supply Services, and will control the transportation department.

Major F. Gilbert, Controller of Factory Transportation, has been appointed Assistant Director-General, Supply Services. He will assist Mr. Patteson generally, and be responsible for administration matters. His successor as Controller of Factory Transportation is Mr. L. G. Burleigh (from Imperial Chemical Industries Limited).

Wing Commander R. H. Berryman, on loan from the Air Ministry, has been appointed Controller of Vehicles & Petrol under the Director-General.

Mr. E. A. F. Johnston, formerly on the Chief Engineer's staff of the London Passenger Transport Board, whose services have been loaned to the Ministry of Aircraft Production by London Transport, is now Assistant Director of Aircraft Production Factories (Construction).

Mr. Ian R. Frazer, District Engineer, Inverness, L.M.S.R., has, as recorded in our August 29 issue, been appointed in a similar capacity to Perth. We published a portrait and a short biographical notice of Mr. Frazer in our issue of March 29, 1940.

Mr. D. McKay Ford, General Purchasing Agent of the Canadian National Railways since 1937, has been appointed Vice-President in charge of purchasing and stores for the railway. Mr. E. A. Bromley, former assistant to Mr. Vaughan, the new President of the C.N.R., is to succeed Mr. Ford. Mr. Ford began his career with the North British Railway in Glasgow in 1900, and joined the staff of the Canadian Northern Railway in 1905 when he went to Canada.

Mr. W. H. Hanscombe, Chief Assistant Solicitor, L.N.E.R., whose appointment as Solicitor of the company we recorded in our September 5 issue, was educated at Charterhouse School, Godalming, and articled to Mr. Arthur Rolit of the firm of Rolit & Sons, Solicitors, of Hull and London. He was admitted Solicitor on July 3, 1899. From 1899 to 1907 Mr. Hanscombe was Managing Clerk to Messrs. Hawkins & Company, Solicitors, of Hitchin, an old-established firm with family connections with Sir Henry Hawkins, afterwards Lord Brampton, the well-known Criminal Judge. Mr.

viser to the Great Western Railway as well as retaining the same title with the L.N.E.R., he has relinquished his position of Solicitor to the company, and Mr. Hanscombe has been appointed to fill the vacancy.

INDIAN RAILWAY STAFF CHANGES

Khan Bahadur M. D. Sheik has been appointed to officiate as Deputy General Manager, Personnel, N.W.R., as from March 28.

Mr. S. D. Bamjee has been confirmed as Deputy General Manager (Works), E.I.R.

Mr. P. L. J. Hands has been appointed to officiate as Controller of Stores, E.B.R., as from April 3.

Mr. H. P. Renwick has been confirmed provisionally as Chief Mechanical Engineer, E.I.R.

On return from leave, Mr. R. E. Marriott resumed charge as General Manager, E.I.R., as from March 20.

Mr. K. C. De has been confirmed provisionally as Controller of Stores, E.I.R.

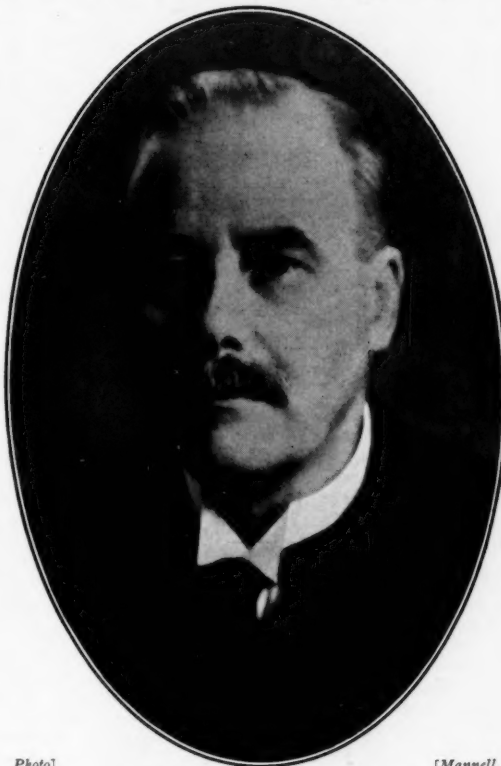
Mr. Yaqub Shah has been appointed to officiate as Financial Adviser & Chief Accounts Officer, E.B.R., as from May 12.

Mr. T. S. Saukara Aiyar, Director of Finance, Railway Board, has been granted six months' leave preparatory to retirement as from May 21.

Mr. I. S. Puri has been appointed to officiate as Director of Finance, Railway Board, as from May 21.

We regret to record the death of Sir Keith Nuttall in London on August 31. Sir Keith Nuttall, who was born in 1901, was the chairman of Edmund Nuttall Sons & Co. Ltd., the well-known civil engineering contractors engaged in the construction of the Mersey tunnel, the King George V graving dock at Southampton, and other important works connected with transport.

Mr. James Elliott, M.A., M.A.I., M.Inst.C.E., District Engineer, Abergavenny, L.M.S.R., whose appointment in a similar capacity to Barrow-in-Furness we recorded in our August 29 issue, was born in 1897 and educated at Trinity College, Dublin. He began his railway career in 1922 with the L.N.W.R., as a pupil of Mr. E. H. Townshend, then District Engineer, Walsall, and later Divisional Engineer, Lancaster, L.M.S.R. Mr. Elliott entered the District Engineer's Office at Fleetwood in February, 1925, where he was engaged in general and permanent way works, bridge, and dock works. From August, 1928, to October,



Photo]

[Mannell

Mr. W. H. Hanscombe
Appointed Solicitor, L.N.E.R.

Hanscombe was made Assistant Solicitor to the Southampton County Council in 1908, and held this office until 1915. In the following year he became Chief Assistant Solicitor to the late Mr. R. Hill Dawe, Solicitor to the Great Northern Railway Company, and upon the formation of the London & North Eastern Railway in 1923, Mr. Hanscombe was appointed Assistant Solicitor to Sir R. Francis Dunnell, Bart., K.C.B., Chief Legal Adviser to the new company. In 1926, Mr. Hanscombe was given the post of Assistant Solicitor for General Matters and held this until his appointment in October, 1937, as Chief Assistant Solicitor. Now that Mr. I. B. Pritchard has become Chief Legal Ad-

1929, he was Divisional Hallade Assistant, Manchester, and was then appointed Resident Engineer, New Works. Mr. Elliott was engaged on new works until November, 1930, when he was appointed Assistant to the District Engineer, Barrow-in-Furness. In October, 1933, Mr. Elliott became Chief Assistant to Mr. S. O. Cotton, then Divisional Engineer, Hunts Bank, Manchester. He acted as

in our August 29 issue, been appointed Principal Assistant to the Chief Mechanical Engineer for Carriage & Wagon Works. Mr. Pugson received a technical education at the Derby Technical College, and entered Derby carriage & wagon works of the Midland Railway in 1910 and, after passing through the works as a Privilege Apprentice, was appointed Works Inspector in charge of

Department, Glasgow, L.M.S.R., who, as recorded in our August 29 issue, has been appointed Divisional Signal & Telegraph Engineer, Glasgow, began his career with the Glasgow & South Western Railway. During the last war, Mr. Bryson for five years held a commission in H.M. Forces. In December, 1919, he re-joined the railway as a draughtsman in the Signal Department



Mr. James Elliott

Appointed District Engineer,
L.M.S.R., Abergavenny



Mr. Ernest Pugson

Appointed Principal Assistant to the Chief
Mechanical Engineer for Carriage & Wagons Works,
L.M.S.R.



Mr. William Bryson

Appointed Divisional Signal & Telegraph Engineer,
L.M.S.R., Glasgow

District Engineer, Manchester Exchange, from April to September, 1935, and was then made Assistant to the District Engineer, Liverpool. In July, 1937, he was appointed District Engineer, Abergavenny, and in 1940 became Acting District Engineer, Derby South.

We regret to record the death on August 14 of Mr. Arthur Henry Bull, formerly Audit Accountant of the Southern Railway. Mr. Bull began his career as an apprentice in the Audit Office of the South Eastern Railway in August, 1880. After holding various positions Mr. Bull became Chief Ledger Clerk in 1896. In 1907 he took charge of the Accounts Section and three years later also took control of the Goods Section. In July, 1913, he was made Audit Accountant of the South Eastern and Chatham Railways Managing Committee, and on July 1, 1923, was appointed Audit Accountant of the Southern Railway. He held this position until his retirement on March 31, 1932. During 1930 and 1931 Mr. Bull was Chairman of the Accountants' Standing Committee at the Railway Clearing House, and was a Member of the Institute of Transport since its foundation. Despite the various amalgamations and changes which had taken place during his career, all of Mr. Bull's service was spent at London Bridge.

Mr. Ernest Pugson, Works Superintendent, L.M.S.R., has, as recorded

the Progress Department in 1915, a position he held until 1922. In 1923 he became Assistant Works Manager; in 1927 Works Manager; and Works Superintendent in 1931.

Mr. William Bryson, Assistant (Signals), Signal & Telegraph Engineer's

at Irvine, and in January, 1927, was appointed Assistant to Signal Superintendent, Scotland, L.M.S.R. In August, 1932, Mr. Bryson became Assistant (Signals) to the Divisional Signal & Telegraph Engineer, Glasgow, the position he now vacates to take up that of Divisional Signal & Telegraph Engineer, Glasgow.

Mr. Albert N. Williams, President of the Lehigh Valley Railroad since January, 1940, and active head of the railway since his election as Executive Vice-President and Chairman of the Board on August 1, 1939, was elected President of the Western Union Telegraph Company on June 17.

The Crown Agents for the Colonies have recently made the following first-class appointments:—

Mr. E. H. Spendlove to be Assistant Locomotive Superintendent, Gold Coast Government Railway.

Mr. A. R. G. Saunders to be Assistant Traffic Officer, Nigerian Railway.

We regret to record the death on July 18 of Mr. Edward Alfred Sims, late Traffic Manager and Chief Railway Commissioner-Designate of Burma Railways.



The late Mr. A. H. Bull

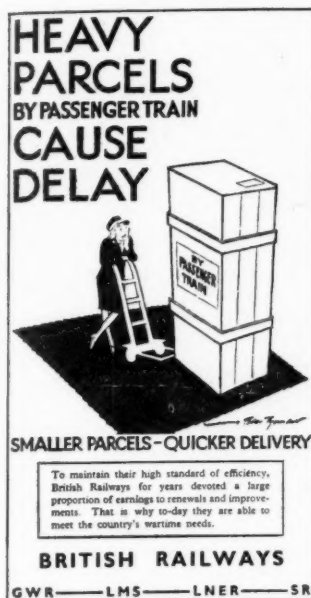
Audit Accountant, Southern Railway,
1923-1932

TRANSPORT SERVICES AND THE WAR—106

*Smaller consignments by passenger trains—Holiday and goods traffic in Germany—
Railway and roads in Spain—Chernavoda bridge—Alternatives to Burma Road*

The British railways have issued appeals to traders and others to avoid, where possible, making up their consignments into heavy parcels when forwarding by passenger train. The present shortage of manpower at many stations,

and the increasing employment of women as station staff makes it difficult expeditiously to handle heavy parcels, which as a result are sometimes subject to delay, as well as hindering the loading of trains. A typical poster, pointing out that smaller parcels mean quicker delivery, and showing pictorially one of the reasons for the appeal, is reproduced. This poster also points out one of the factors which have enabled the British railways to maintain so high a standard of efficiency under the stress of war-time operating.



Elephant & Castle Station Reopened

The Elephant & Castle (Southern Railway) station was reopened to traffic on September 1.

International (U.S.A.) Lorries for Great Britain

The Director-General of the Ministry of War Transport announced on August 9 that, to make good a shortage of home-produced new road vehicles, a number of International Harvester chassis had been purchased from the U.S.A. and were being assembled in this country. Any operator of road transport who is urgently in need of trucks or lorries, and whose application for a licence to acquire a new vehicle has not yet been dealt with, should write to the Road Transport Division (Room 516), Horseferry House, Horseferry Road, S.W.1, if he wishes to obtain a licence for one of these vehicles. The price is £710 for the chassis and cab, and the completed vehicle, which is right-hand drive, will carry up to 7 tons. Arrangements have been made for a supply of spares, and early delivery of the vehicles may be obtained.

Transport of Shipyard Workers

The problem of getting shipyard workers to and from their work has led to much thought both by employers and transport authorities, but a good deal of difficulty still exists in more than one district. In many cases the men live at considerable distances from their place of work, and despite all that has been done they do not find means of travelling easy. In some districts the transport authorities have made provision to meet the need as far as possible, at ordinary leaving times, and a good service of trams and buses has been arranged, but when men work overtime and, tired, want to get home later in the evening they find the service by no means so adequate. Even in mornings when, presumably, the times that transport is required are more uniform, there is much complaint of delay, states *Shipbuilding and Shipping Record*. In connection with the talk of absenteeism which has been heard recently it is alleged by some of the men that owing to overcrowding of buses they sometimes lose time because, through no fault of their own, they have

been delayed in getting to work. There has been a suggestion that war workers should be given priority in the buses, a proposal which, though difficult, is well worth consideration.



A new poster issued by the Railway Executive Committee drawing attention to the fact that food supplies to railways are rationed and that refreshment baskets have been abolished

Goods Traffic between Germany and France

Since July 15, more or less normal goods traffic has been resumed between Germany and France. Up to that date only full wagon loads for conveyance by ordinary goods trains were accepted. Under the new regulations small consignments, *petite vitesse* and *grande vitesse*, *Frachtgut* and *Eilgut*, as well as wagon loads of both classes, are allowed in both directions. Only two routes, *via* Mulhouse—Belfort, and *via* Blainville—Lunéville may be used for this traffic.

Transit goods traffic between Germany and Spain through France is accepted in both directions, but only in full wagon loads, and is conveyed only when full train loads are assembled. In the opposite direction all consignments must be sent to either Frankfort or Freiburg, whence through goods trains are run, from Frankfort *via* various routes through occupied France to Irun, and from Freiburg *via* Breisach, Colmar, Mulhouse, Belfort to Port-Bou. Permits for this traffic must be obtained before despatch. In the return direction assembly of train loads takes place at Port-Bou and Irun.

From July 28, all internal goods rates on the French railways, in occupied and unoccupied parts, have been increased by at least 10 per cent., and all special rates by at least 15 per cent.

Holiday Traffic in Germany

It is reported that this summer there has been a heavy flow of German holiday makers to Upper Bavaria and Austria, districts which the German authorities had used for accommodating evacuees from large cities and dangerous areas. The German Tourist Office authorities endeavoured to control distribution by arranging for preference to be given at spas to those who were ill, and by asking hotel keepers to

limit the stay of guests to not more than four weeks. In some cases guests overcame this injunction merely by shifting their quarters. Attempts to enforce official measures have now been abandoned, and have given place to appeals to holiday makers.

Traffic through Yugoslavia

Since the German invasion of Yugoslavia, the Italian State Railways have extended their efforts to develop Italian-Croatian-Hungarian traffic through the port of Fiume. An agreement for a new lease of the Thaum de Revel basin in the port has been signed by the Italian Government and the Croatian puppet régime. A similar agreement with the Yugoslav Government had been in operation since 1925, but little use of the port had been made by Yugoslavia, as most of the traffic had naturally been routed *via* the direct line to Susak, the Yugoslav port just south of Fiume.

The railways in the district were seriously damaged during the war operations, but repair work was taken in hand by the Italians immediately after the cessation of hostilities, and in July the railway from Fiume was reopened as far as Longatico, whence a passenger and goods road service was operated to Ljubljana (Laibach) by the Italian State Railways. Further reconstruction is being continued, and, as this railway is a single-track line with very severe gradients, the Italian Railways have taken in hand plans for the electrification of the Italian section of the Fiume—Ljubljana—Zagreb—Koprivnica—Hungarian frontier line. It is understood that the Italians will also plan the electrification of the section in Croatian territory, from Brezice to Zagreb, the Germans presumably undertaking to electrify the Ljubljana—Brezice (Rann) section.

At the same time the Croatian Government, on the orders of its Axis masters, has instructed the railway management to plan and speed up the following works:—

1. Double tracking the entire length of the Ljubljana—Zagreb—Belgrade main line in Croatian territory, *i.e.* from Brezice to Zimony.
2. Realignment and strengthening of the north-south line from Cakovec, the junction nearest to the point where German, Hungarian, and Croatian frontiers meet, *via* Zagreb and Ogulin, to Split.
3. A new north-south line from Osijek on the Hungarian frontier, *via* Vinkovci, Tuzla, and Serajevo, to Metkovic, using some existing sections.
4. A new west-east line from Senj, a small port on the Adriatic, south of the point where the new Italian frontier reaches the sea, *via* Bihać and Banjaluka, to Tuzla junction on the new line No. 3.

The cost of these works is estimated at 900 million dinari (approximately £5,000,000).

Restricted Rail Transport in Occupied France

The improvements in passenger transport in occupied France, which were introduced in March last, have recently been abolished. Fares have been increased by 20 per cent., and freight rates by 10 per cent.

The Madrid-Valencia Direct Line

The construction of the missing link on the direct line between Madrid and Valencia, according to a report from Berne dated August 5, has been resumed. The section to be completed is that between Cuenca, the capital of New Castile, east of Madrid, and Utiel in Valencia province. The existing railway between Madrid and Cuenca is 124.8 miles long; the extension eastwards, with four intermediate stations and its temporary terminus at Arguisuelas, is not yet open for traffic. The railway from Valencia to Utiel is 54.6 miles long and here, too, an extension (westwards) is already in existence through Las Cuevas to Camporobles 13 miles west of Utiel. The section remaining to be completed is some 60 miles in length and is expected to be ready in about two years. The cost is estimated at about 4,000,000 pesetas. When completed, the direct line between Madrid and Valencia will provide a considerably shorter connection between the capital and Spain's second port on the Mediterranean as compared with the present roundabout way *via* Aranjuez, Albacete, and La Encina, totalling 304.3 miles. This link between Cuenca and Utiel, of which only the Arguisuelas-Camporobles

section now remains to be finished, would have been completed some years ago had it not been for the bridging of the ravines of the River Júcar and its tributaries, where three great viaducts are now being constructed.

Strategic Roads in Spain

A correspondent of *The Times* refers to recent road-building activity in Spain. There are now, he says, excellent military roads converging on the frontier at Irún, and much has been done lately in the way of strengthening bridges and improving fords on the minor roads and tracks of north-western Spain. The Spanish authorities describe this activity as an elementary measure of defence, and certainly it is not necessary to assume that such preparations have any connection with reported German intentions in the Iberian peninsula. It is pointed out that in a war, the precise development of which cannot always be foreseen, provision must be made against any eventuality, including an attack from the west. The foregoing presupposes a strategic background for the reported road-building activities, but it may be pointed out that since the end of the Civil War the Spanish Government has carried out a very extensive and systematic programme of road repairs and extension, not only to repair the damage and neglect which occurred during that war, but also to improve the general road system, as evidenced by the occasional references to such works in the columns of *THE RAILWAY GAZETTE*. At the same time it is only reasonable to assume that preference will now be given to work within what may be called defence areas, adjacent to the frontiers.

Chernavoda Bridge Bombed

On August 12 it was stated in an official report issued by the Russian High Command that on the previous day the Red Air Force had bombed the railway bridge across the Danube at Chernavoda and that the bridge had been destroyed. Two days later the destruction of the bridge was officially denied in Bucharest where it was stated that it had been hit by small fragments of bombs only and that train traffic across it was normal. The bridge carries the railway line between Bucharest and the Black Sea Port of Constanza. It was opened in 1895, is about 2,435 ft. long, and cost about £1,400,000 to construct. In *THE RAILWAY GAZETTE* of April 4, 1941, at page 404, some details were given of certain other of the more important railway bridges across the Danube.

Alternatives to the Burma Road

In the *Observer* of August 3, "The Position in China" was the subject dealt with in "The Forum" columns. Speaking of Japan, one paragraph reads: "China is still her first enemy. China's resistance prevents her from releasing Forces for the achievement of her vast Asiatic ambitions. The move into Indo-China and threats against Thailand are directed immediately against the southern extremity of the Burma Road. Japan must hope to cut that link between Chungking and the outer world before Chinese labour completes the more secure passage which runs across northern Burma towards Calcutta." As shown in our latest map of China published in *THE RAILWAY GAZETTE* of June 6 last, there is upon the Free-China programme of communications a proposed railway from Chengtu, capital of Szechwan Province, westwards through Kongting, Batang, and Rima to Saikoa Ghat in Assam, there to link up with the Indian railway system. This line will follow, more or less closely, the old road, at any rate as far as Batang. It is known that in recent years this section of the old road to Tibet has been improved and may be passable for lorries at any rate from Chengtu to Gartok, just west of Batang, whence it turns northwards through Chamdo and thence westwards to Lhasa. But both road and railway to Assam must traverse wild and rugged country throughout the 750-800 miles separating Chengtu from the Brahmaputra valley, and between Gartok and Rima much of the route is little more than explored, and barely administered. It is well north of "The Triangle," between the branches of the Irrawaddy, on the extreme northern limits of Burma and comparatively recently subdued by military police. The only other possible road would seem to be the conversion of the Sino-Burma pack trade route *via* Bhamo, Tengyueh, and Paoshan (Yungchang) to a motor highway, and this would be very difficult.

Discussion on Smoke Lifting

Mr. O. V. S. Bulleid, Chief Mechanical Engineer of the Southern Railway and President of the Institution of Locomotive Engineers, occupied the chair at the meeting on September 3 at which Mr. H. Holcroft's paper, an abstract of which is given on pages 259 to 261 of this issue, was discussed.

Mr. E. Windle, opening the discussion, showed a number of lantern slides to illustrate the development of streamlining in the L.N.E.R., and remarked that it had its inception in the desire to lift the exhaust steam and smoke clear of the engine cab in locomotives which, by the nature of their high-speed duties, would be specially liable to suffer from steam obscuring the driver's outlook. Apart from the considerable saving in power at high speed effected by streamlining, it had proved the most efficient method of lifting exhaust clear, not only of the driver's outlook but of the whole streamlined train. Mr. Windle mentioned the various conditions imposed on the Locomotive Department in designing a suitable form of streamlining at the front end. It was stipulated, for one thing, that when the front was opened to gain access to the smokebox it should not foul the loading gauge, and it was this which led to the adoption by the L.N.E.R. of the horizontal-wedge shape in front, rather than the vertical. Another factor which had proved of great assistance in lifting smoke, not only in the streamlined engines but in others, was the wedge-shape cab front, and this had been adopted for all recently built passenger or mixed traffic engines. One of Mr. Windle's slides showed that the effect of raising the front of the chimney in the form of a capuchon, a device which the late Sir Nigel Gresley had tested early in his wind-tunnel experiments, was rather to make matters worse than better.

Mr. E. C. Poultny, referring to the capuchon, said he had always understood its general purpose to be the avoidance of down-draught rather than lifting the smoke. Regarding side plates and other smoke-lifting devices, like streamlining, no two systems were the same and it seemed impossible to say what was the correct thing to do. He had recently watched a number of trains passing along the L.M.S.R. main line, near Kilburn, where gradients are negligible and the locomotives are working at about normal cut-off. There he saw "Royal Scots," Pacifics, and taper-boiler engines on a succession of expresses, and all threw the smoke up clear of the cab about equally well, though the taper boiler engines were not fitted with smoke deflectors, as were the "Royal Scots," with parallel boilers and large smokeboxes.

Mr. A. R. Ewer remarked that in his opinion one of the main advantages of streamlining was that it caused the chimney discharge to rise above the cab.

Mr. W. A. Willox also referred to the capuchon and to the Jones louvered chimneys on the old Highland Railway, the purpose of which he understood to be rather the prevention of down-draught than the throwing up of the exhaust when the engines were running for long distances downhill with the regulator closed, as they had to on the Highland line. He referred to Mr. Holcroft's comment on the Great Western "Castle" class locomotives, which had a longer chimney owing partly to the smaller diameter of the smokebox which accompanied the taper boiler, and partly to the higher loading gauge. Mr. Holcroft mentioned this as making it possible for the discharge into the atmosphere to be made in a less disturbed region. Mr. Willox expressed surprise that a matter of only two or three inches could make so much difference. He also mentioned that the latest "Castle" class express locomotives had shorter chimneys than the earlier ones and wondered whether this had been found adversely to affect their smoke-lifting properties. He described variations of streamlining and other smoke-lifting devices used in Germany and France, and mentioned the Pottier system of clear cab vision, which used deflected currents of air to prevent direct draught at the front of the cab, as a result of which it was not necessary to have glass in the cab outlook windows. This was very popular with enginemen in France.

Mr. J. Clayton described the early experiments carried out by the Southern Railway, which was the pioneer in this country in the use of smoke-lifting devices. These began immediately after the amalgamation, when it was found that complaints were frequently made by drivers on the South Western Section, while similar complaints were rare on the Brighton and South Eastern Sections. It was observed that, whereas the South Western main line ran generally east and west, and therefore more or less in line with the prevailing wind, the other main lines cut across it, and this seemed to show that external physical conditions were of great importance in this question. This was confirmed by wind tunnel experiments described in the paper.

Mr. B. W. Peacock, mentioning his experience with wind tunnel experiments, gave it as his opinion that it was impossible to foretell exactly what effect any particular device might have until it has been tried in the wind tunnel or in practice. The fundamental principle was, he thought, that there should be a wedge-shaped pocket of air in front of the smokebox, and directed upwards, and for this reason it seemed essential to bring the deflector plates well forward.

Mr. B. Spencer, referring to the standard streamlined engines on the L.N.E.R., pointed out that an important factor in their success in lifting the

smoke was the slight depression immediately behind the chimney, without which it had been found that, in a side wind, the eddy currents on the leeward side of the engine caused serious obscuration of the outlook.

Mr. Bulleid, winding up the discussion, said that in his opinion the question of down-draught, which had been suggested as a reason for fitting capuchons, was not a serious one at all, for it had been shown that locomotives could run with a completely open chimney and no exhaust steam without showing a tendency to throw the fire back through the smokebox door. The late Sir Nigel Gresley had conducted tests to show that the smokebox vacuum disappeared and atmospheric pressure prevailed in it without any ill-effects when the locomotive was running at high speed with the regulator closed. He described recent experiments in dividing the exhaust into three streams by fitting three separate chimneys abreast. While this was intended to minimise the length of the stream of exhaust and, in fact, did so, it also demonstrated that there were no objectionable results from down-draught, which intermittently occurred in alternate chimneys. On the subject of smoke-lifting, Mr. Bulleid did not think that a complete solution of the problem was possible, although the difficulty could undoubtedly be greatly ameliorated.

Mr. Holcroft, replying to the discussion, expressed his appreciation of the various contributions, as showing how the problem was being tackled by other railways, for his own paper was based almost entirely on the experiences of the Southern Railway. In regard to the Great Western locomotives, he said that a matter of the very shortest distance above the boiler, even a couple of inches, was found sometimes to make a vital difference to the ability of a locomotive to throw its smoke and exhaust clear of the cab.

GREAT SOUTHERN OF SPAIN RAILWAY CO. LTD.—The report for 1940 states that although the Spanish Government entered into possession of the railway, with all the broad-gauge lines, on February 1 last, the board is unable to indicate the equitable compensation provided by the Law of January 24, although the company has submitted an expert valuation.

W. T. HENLEY'S TELEGRAPH WORKS CO. LTD.—Presiding at the recent annual meeting, Sir Montague Hughman said 1940 was one of the most difficult years in the company's history. Nevertheless, the hours worked in its factories showed a substantial increase on former years, and constituted a new high record. At the overseas branches the turnover and the profits were the highest on record. The percentage this bore to the total turnover of the company was over 28 per cent.—a remarkable achievement in war time.

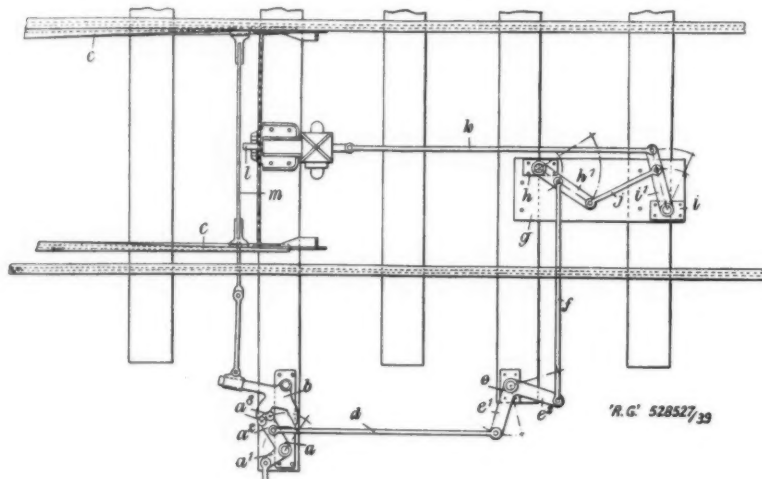
ABSTRACTS OF RECENT PATENTS*

No. 528,527. Point Locks

Henry Williams Limited, and David Denis Williams, all of Railway Appliances Works, Darlington. (Application date: May 6, 1939.)

In an economical facing point lock there is a bell crank lever *a*, with one arm *a*¹ connected with a lever in a

front surfaces 8 then forming guides for the coupling heads in conjunction with the surfaces 9 and 10. To uncouple the trucks it is necessary to pull the rod 11 of one of the two coupling heads, so that the lever 12 is turned on the pivot pin 13 mounted on the claw 2. When the opposite



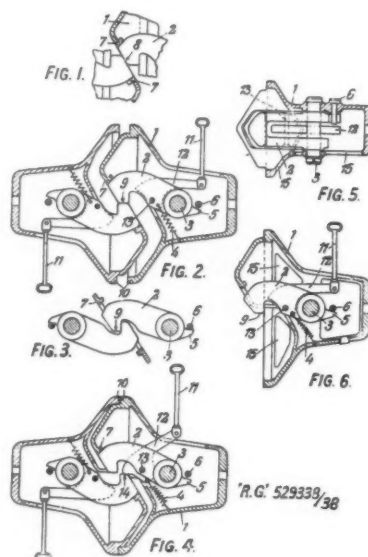
signal cabin and the other arm *a*² carrying two rollers *a*³ which co-operate with an escapement crank *b* connected to the switch blades *c*, as in standard practice. The arm *a*² is connected by a link *d* to one arm *e*¹ of a bell crank *e*. The other arm *e*² is similarly connected by a rod *f* to a lever *h*¹ which is pivoted on a base *h*. Between the lever *h*¹ and another lever *i*¹ (mounted on a baseplate *i*) is a link *f*, and the lever *i*¹ is also operatively connected to the plunger *l* by a rod *k*. It will be seen that the lever *h*¹ has a dead centre position, so that when the switch lever is operated the plunger is first withdrawn and then moved in the reverse direction. In this way operation of the switch lever first unlocks the switch by removing plunger *k* from the lock stretcher bar *m*, then moves the switch blades *c*, and finally relocks the switch by returning plunger *k* to the stretcher bar *m*.—(Accepted October 31, 1940.)

No. 529,338. Automatic Coupling

Scharfenbergkupplung Aktiengesellschaft, of 6a, Lennéstrasse, Berlin, W.9. (Convention date: October 5, 1938.)

A coupling for trucks has a claw 2 pivoted on a pin 3 in the coupling head 1. In the position ready for coupling (Fig. 6) or when coupled (Fig. 3) a spring 4 holds the lug 5 against a stop pin 6. When coupling the contacting claws 2 push each other outwards until they contact their stops 7 (Fig. 1), the

claw has reached its rearmost position against stop 7, the lever 12 fulcrums on this claw and thus retracts its own claw towards its stop 7. Subsequently the surfaces 14 rest against each other as in



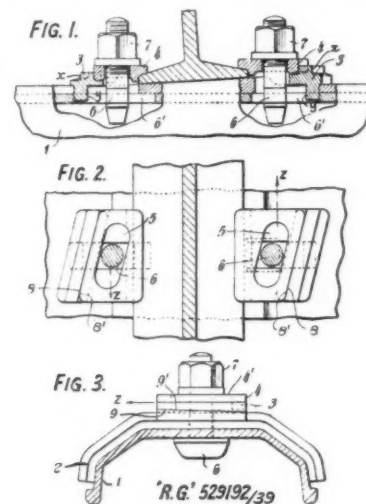
the second stage of coupling (Fig. 2), until the trucks are drawn apart. Fig. 5 is a vertical section of a coupling head. Openings 15 are provided to prevent

accumulation of waste material.—(Accepted November 19, 1940.)

No. 529,192. Rail Securing

Robert Donald Thain Alexander, of Bagshot Heath, Camberley, Surrey, and William Ashburnham Harris, of Lakeen House, Shillelagh, Co. Wicklow, Eire. (Application date: May 24, 1939.)

In the drawings 1 is a sleeper, 2 is a saddle, 3 are fillers, 4 are clips provided with slots 5, adapted to be secured on the sleeper or saddle by T-bolts 6, passing through slots 6' in the sleeper, and nuts 7. The fillers 4 have bearing surfaces 8 and 9 corresponding with bearing surfaces 8' and 9' of the clips 4. As will be seen from Fig. 3, the clips cannot work loose by displacement in the direction of arrows *z*, without increasing the pressure between the nuts 7



and the upper face 4' of the clips. To accommodate a rail section different to that in Figs. 1 and 2, and having a wider bottom, the fillers 3 are reversed so that the faces *x*, *y* bear on the sleeper slots and the backs of the clips 4. The invention is intended to be applied to steel or cast iron sleepers, with or without a saddle, and on wooden sleepers with a bearing plate. A chair or rail seat may also be used.—(Accepted November 15, 1940.)

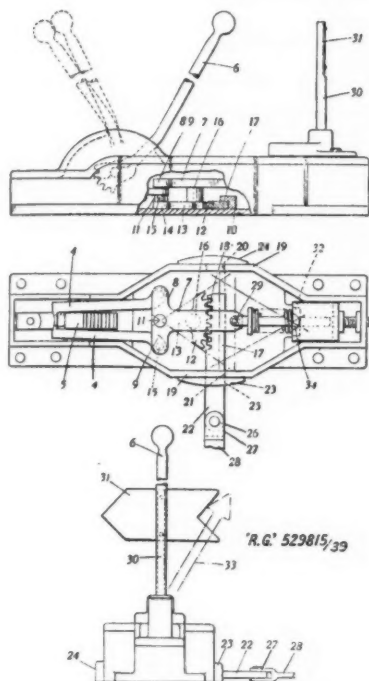
No. 529,815. Switch Boxes

Thomas Summerson & Sons Ltd., and Samuel Summerson Wrightson, all of Albert Hill Foundry, York Street, Darlington, Durham. (Application date: June 8, 1939.)

In the drawings the toggle system of a switch box 10 is shown passing through the dead-centre position. The hand lever 6 operates a slide 5 and sliding links 4 which are connected to the arms 8 and 9 of a T-lever 7. The centre arm of lever 7 forms one lever of the spring toggle system 29, and the lever is pivoted at 11. Also pivoted at 11 is a toothed quadrant 12 having a centre arm 13 and short arms 14 and 15. The system is partly supported by a post 16. Meshing with the quadrant 12 is a rack 18 formed on the sliding bar 17,

* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each.

the other end 22 of this bar being connected at 26 with the fork 27 of a connecting rod 28. For this purpose the sides 19 of the box 10 are apertured at 20 and 21, and cover plates 23 and 24 are provided, the plate 23 being also apertured at 25. The switch box includes an indicator arrow 31 mounted on a spindle 30 which is turned by a quadrant and pinion apertured for spindle 34 of the toggle guide washer 32. In some cases an horizontal spindle

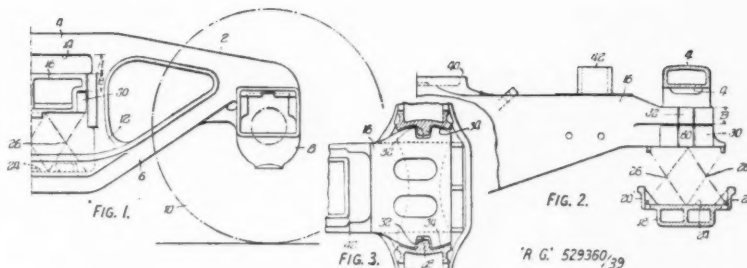


could be used instead, together with an indicator arrow 33.—(Accepted November 28, 1940.)

No. 529,360. Trucks

American Steel Foundries, of 410, North Michigan Avenue, Chicago, Illinois, United States of America. (Application date: May 30, 1939.)

Fig. 1 is a side view, Fig. 2 is an end view, and Fig. 3 is a fragmentary plan view of one half of a four wheel truck having a truss side frame 2, with the compression member 4 and the tension member 6 merging with the journal box 8 for the wheel and axle assembly 10. The columns 12 define the opening 14 for the reception of the end of the bolster 16. Below the opening 14 the member 6 has a box-like section 18, with flanges 20 and 22 defining the dimensions of the spring seat 24 for seating resilient means 26 which support the bolster 16. Each column 12 has a guide flange 28 for engaging a complementary channel 32 in the end of the bolster 16. On either side of the channels 32 the walls of the bolster 16 are of cylindrical formation corresponding to the abutting surfaces of the columns 12, as at 34. Seated on the resilient means 26, and received in a recess in the bolster, is the interlocking

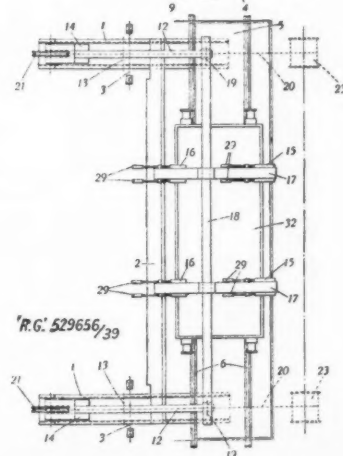
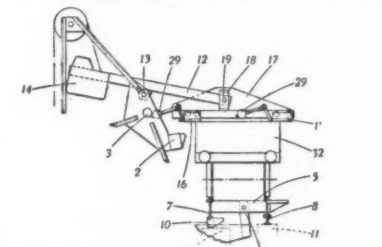
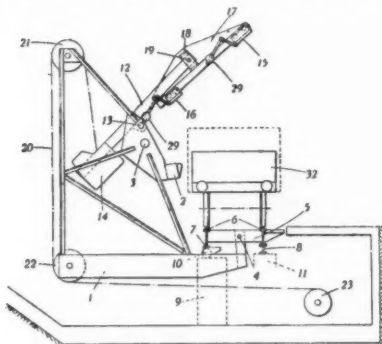


member 30. The invention also includes a novel form of bolster.—(Accepted November 13, 1940.)

No. 529,656. Wagon Tippers

Babcock & Wilcox Limited, and Robert Bryson Wright, all of Babcock House, Farringdon Street, London, E.C.4. (Application date: May 24, 1939.)

A side tippler consists of a main rotary truck or wagon carrier formed by two end frames 1 and cross members, one of which latter, 2, forms a side chock. The end frames are rotatable about axes 3. Supported by pivots 4



is a wagon (32) receiving table 5 with rails 6, the table being maintained in its horizontal position by legs 7 and 8 which bear on rollers 10 and fixed supports 9 and 11. For clamping the wagon there are two levers 12 rockable about axes 13 and having bias weights 14. Clamping bars 17, which are secured to a girder 18, carry the wagon-contacting members 15 and 16. Near each end the girder 18 has slots into which the levers 12 extend, and the girder is pivoted at 19. Cables 20, for operating the tippler, are attached to the levers 12 and drums 23, the cables passing over pulleys 21 and 22. The cables may be wound on to the drums 23 by means of a suitable engine. As will be seen from the drawings, the carrier rotating means first effects clamping of the wagon before tipping the wagon by rotating the wagon carrier.—(Accepted November 26, 1940.)

COMPLETE SPECIFICATIONS ACCEPTED

528,434. Cook, F., Wits, H. E., and London Passenger Transport Board. Current collectors for electric vehicles.

528,527. Williams Limited, H., and Williams, D. D. Economical facing point locks.

528,648. Hoffmann Manufacturing Co. Ltd. (Hoffmann Bearings Corporation, N.). Ball-and-roller bearings.

528,747. Westinghouse Brake & Signal Co. Ltd. Electric remote-control systems.

528,863. Gombos, L., and Aszalos, L. Train-actuated electric track contact devices.

529,192. Alexander, R. D. T., and Harris, W. A. Means for fixing rails to sleepers.

529,282. Soc. Française Metrum. Electrical device for checking the receiving circuits of inductor-type signal-repeater systems upon railways.

529,302. Conradty, E., and Conradty, O. (trading as Conradty, C.). Carbon sliding contact members for the collectors of electric vehicles.

529,338. Scharfenberg Kupplung A.G. Automatic coupling for vehicles, particularly for trucks.

529,360. Stevens, A. H. (American Steel Foundries). Railway trucks and bolsters therefor.

529,469. Peters & Co. Ltd., G. D., and Cardwell, C. H. Windscreen wipers for rail or road vehicles.

529,656. Babcock & Wilcox Limited and Wright, R. B. Wagon tipplers.

529,678. Lamp Manufacturing & Railway Supplies Limited and Minett, D. H. Electrical thermal switches for use in railway signal light-repeating and like apparatus.

529,814. Ransomes, Sims & Jefferies Limited and Mathers, H. Electrically-propelled trucks.

STAFF AND LABOUR MATTERS

Civil Servants' Bonus

By an award of the Civil Service Arbitration Tribunal the salary limit within which non-industrial Civil Servants can receive bonus has been raised to £500 a year. Hitherto the bonus has been paid on salaries up to £300 a year for women and £350 a year for men. The amount of the bonus is unchanged, and on salaries up to £250 a year men will receive 10s. a week and women 7s. 6d. a week. From £250 a year to £500 a year men will receive 5s. a week and women 4s. a week. The change takes effect as from September 1, 1941.

Electrical Contracting Industry—War Bonus

The National Arbitration Tribunal has issued its award on a claim for a declaration that the National Federated Electrical Association has no power to vary the Wages (War Adjustment) Agreement of November 24, 1939. The dispute arose out of an application made by the National Federated Electrical Association for a modification of the terms of the agreement.

The award states that the question is in effect whether the agreement can be abrogated by one of the parties. The tribunal observes that the agreement was made between the parties after the commencement of the war, that it expressly provides that it shall operate for the period of the war, and that it contains no provision for review or modification. It was contended that the clause in the agreement relating to the cost of living (war) addition was on a different footing from the clause relating to basic rates and was not governed by the "period of the war" provision. It was also contended that the abrogation of the agreement was justified on the ground of changed conditions which had supervened since the agreement was made. The tribunal does not consider that either of these contentions can be sustained. The tribunal deprecates the making of an agreement which provides for a war bonus to operate for the period of the war and contains no provision and gives no opportunity for its review. It is of opinion that unless and until such agreements are abrogated by legislation or Order in Council, the agreement of November 24, 1939, can only be varied or dissolved by the consent of both parties. It therefore finds that the agreement has not been validly determined.

T. & G.W.U. Conference

The biennial conference of the Transport & General Workers' Union, which was held at Llandudno, commenced on August 18, when Mr. Bevin, Minister of Labour & National Service, addressed the delegates. Explaining the Government's policy on price stabilisation and wages, as set out in the recent White Paper, he said that it had already been decided to stabilise prices on a wide scale, and this was being done for food,

transport, and other public utilities. These factors made the situation very different from that at the end of 1939, when the question of wages policy was previously discussed.

The policy announced in the White Paper would, he felt, relieve anyone of the necessity of saying whether a wage claim was in the national interest or not. Such a declaration was not a good answer if the wages were low, if there were increased production, or if there were circumstances in the industry which had intensified the work. He went on: "What we have determined, as not in the national interest, is that a national claim goes forward which, in its effect, would disturb the stabilisation of prices. In other words, if it causes such a jolt as to upset the whole economy of this stabilisation of prices."

The conference was opened by Mr. H. J. Edwards, the President of the Union, and some of the subjects dealt with were:—

Nationalisation of Transport

A resolution by Mr. Arthur Deakin, acting general secretary, was adopted, demanding nationalisation of all forms of transport as early as possible. Dealing especially with road transport, Mr. Deakin said that passenger services had improved through better organisation during the last ten years, but they would be much more efficient under national ownership. The Ministry of Transport had been considering plans for the partial control of road goods haulage, on the basis of hiring vehicles from the owners and carrying on the services. They would never solve the problem under such an arrangement. They must eliminate the profit motive.

In the same way, private enterprise had proved a failure with inland waterways. Under a properly co-ordinated system of transport these could be of great value.

War-Time Advances

After a private session it was announced that the executive had been instructed to take the initiative in all wage negotiating machinery to bring wartime advances into line with the increased expenditure workers have to meet. The Government should take all possible steps to prevent a further rise in the cost of living.

Women's Wages

On the subject of women's wages, the conference demanded the immediate operation by the Government and by local authorities of the principle of "the rate for the job" in all industries. It called for joint action by the whole trade union movement to strive for immediate increases in the basic rates for women's work in the engineering and all other trades.

Holidays

The delegates adopted a resolution calling for the introduction of a 14-day

annual holiday with full pay for all workers.

Fire Watching

A resolution was passed declaring that it was essential that workers undertaking fire-watching duties on works premises should receive adequate pay, travel facilities, meals, and decent accommodation. Guarantees of compensation in case of injuries, the terms to be arranged with the trade unions, were also called for.

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices	
			Sept. 5, 1941	Rise/ Fall
G.W.R.				
Cons. Ord.	52	22½	41	- 1½
5% Con. Pref.	103½	58	100½	—
5% Red. Pref. (1950) ..	105½	88	103	—
4% Deb.	107½	90½	105½	—
4½% Deb.	108½	96½	108	—
4½% Deb.	114½	96	115½	—
5% Deb.	124	106	128	—
2½% Deb.	66½	57	66	—
5% Rt. Charge	117½	97	123½	—
5% Cons. Guar.	117	90½	120½	—
L.M.S.R.				
Ord.	24½	9	14½	- 1½
4% Pref. (1923)	60½	21½	50½	—
4% Pref.	70½	35	64½	—
5% Red. Pref. (1955) ..	94½	60	93½	+ 2
4% Deb.	101½	81	101½	—
5% Red. Deb. (1952) ..	109½	102	108	—
4% Guar.	93½	65	93½	—
L.N.E.R.				
5% Pref. Ord.	8½	1½	3	- ½
Def. Ord.	4½	1½	1½	—
4% First Pref.	60	20	49½	—
4% Second Pref.	22½	6½	18	—
5% Red. Pref. (1955) ..	80	34½	75½	+ 1
4% First Guar.	86½	56	84½	—
4% Second Guar.	77½	37	74½	—
3% Deb.	73½	54½	75½	—
4% Deb.	97½	74	99½	—
5% Red. Deb. (1947) ..	107	96½	104	—
4½% Sinking Fund Red. Deb.	104	98	101½	—
SOUTHERN				
Pref. Ord.	79	34	63½	—
Def. Ord.	22½	7	14	- 1½
5% Pref.	104½	58½	96½	—
5% Red. Pref. (1964) ..	105	85	103½	—
5% Guar. Pref.	116½	90	120½	—
5% Red. Guar. Pref. (1957)	114½	94	111½	—
4% Deb.	106½	84½	104½	—
5% Deb.	122½	100	126½	—
4% Red. Deb. (1962- 67)	106	96½	105	—
4% Red. Deb. (1970- 80)	106½	93	105	—
FORTH BRIDGE				
4% Deb.	95½	87	94½	—
4% Guar.	93½	81½	94½	—
L.P.T.B.				
4½% "A"	116	103	113½	—
5% "A"	121½	107	123½	—
4½% "T.F.A."	105½	101	101½	—
5% "B"	116	102	111½	+ 1
"C"	65½	24	42	- 1½
MERSEY				
Ord.	26	18½	20½	—
4% Perp. Deb.	92½	86½	92½	—
3% Perp. Deb.	68	63	66½	—
3% Perp. Pref.	57	50½	56	—
IRELAND				
BELFAST & C.D.				
Ord.	4	3	4	—
G. NORTHERN				
Ord.	4½	1½	7	—
G. SOUTHERN				
Ord.	12½	4	4½	- ½
Pref.	15½	6	6½	—
Guar.	36	15	22	+ 2½
Deb.	55½	40	48½	+ 1½

Notes and News

First Class Travel in London Suburban Area.—As from October 6 first class railway tickets will cease to be issued in the London suburban area.

Ulster to Great Britain Air Service.—A two-way air mail service between Belfast and Great Britain began on September 1. The new service should ensure the speeding up of delivery of mail, especially between Ulster and the English southern counties.

Expected Big Indian Railway Surplus.—A Reuters message from Simla, dated August 28, states that the latest estimate of the Indian Railway surplus for the year ended March 31, 1941, places it at £13,845,000 as compared with £3,247,500 in 1939-40 and £1,027,500 in 1938-39. The previous estimate, reported on page 650 in our issue of June 13, put the probable surplus at Rs. 14½ crores, £10,875,000 only.

Great Southern Railways (Ire).—For the 34th week of 1941 the Great Southern Railways Company reports passenger receipts of £44,303 (against £42,715), and goods receipts of £53,385 (against £46,978), making a total of £97,688 against £89,693 for the corresponding period of the previous year. The aggregate receipts to date are passenger £1,357,065 (against £1,203,737), goods £1,691,077 (against £1,539,810), making a total of £3,048,142 (against £2,743,547).

Road Accidents in July.—The Ministry of War Transport return of the number of persons reported to have died or to have been injured as a result of road accidents in Great Britain during the month of July shows a total of 647 deaths compared with 578 in the similar month a year earlier. Of these 65, against 115, accidents resulting in death occurred during the hours of darkness and 582, against 463, at other times. The number of persons seriously injured in July last was 3,767; those slightly injured numbered 12,154. Comparable figures for persons injured are not available for the similar period of 1940.

New China Highway.—Last December the Shihchiachwang (Shihmen)-Tsangchow highway was completed by the North China Transport Company and opened for traffic. It is 220 km. (138 miles) in length and 100 ft. wide, and has been built instead of the previously-proposed railway to link up the Peking-Hankow Railway at Shihchiachwang with the Tientsin-Pukow Railway at Tsangchow. Had a railway been constructed as the Free Chinese intended, the coal and other heavy traffic from Shansi would have been railed direct to Tientsin for export, whereas the Japanese, who now control the North China Transport and Railway, wish all this through traffic to gravitate to the port of Tsingtao, where they are firmly established. The road is, no

doubt, a sop to the Chinese to cater for local traffic east and west, and it will serve as a feeder to the railway at each end, but the Shihchiachwang-Tehchow Railway, recently opened, provides a direct outlet from Taiynan (capital of Shansi) via Shihchiachwang to Tehchow, Tsinan, and Tsingtao for the export traffic.

Jumping Wheels.—In wheel-slipping tests conducted on the Chicago, Burlington & Quincy Railroad some time ago, it was proved through slow-motion pictures that with certain express engines the effect of the extra balance weight for the reciprocating parts was to raise the wheel off the rail at 90 m.p.h. and over. This is lower than the usual critical speed for such engines. Certain eight-coupled engines with 55-in. wheels built in England had a critical speed of about 93 m.p.h. and the Gresley Pacifics have a critical speed of well over 120 m.p.h.

London Transport Rating.—The Railway & Canal Commission has reserved judgment in the appeals against the findings of the Railway Assessment Authority in respect of the first "completed" valuation roll of the "transport undertaking" of London Transport, which roll operates for the five years from April 1, 1936. The authority found the average net receipts for the two accounting years ended June 30, 1935, to be £3,108,004, and the net annual value for rating purposes (the cumulo) to be £1,594,000. On appeal, London Transport objected to the figure for average net receipts and contended that the cumulo should be reduced to £400,000, and the London County Council claimed that it should be increased to £2,085,000. Hearing of the appeals began in July last and occupied 24 days.

Railway and Other Reports

Dorada Railway Co. Ltd.—For the year 1940 gross revenue was £146,698, or £17,989 less than for 1939, and in the working expenses of £118,388 there was a reduction of £5,321. Goods receipts fell from £147,890 to £131,432; the tonnage hauled was 197,062 tons, a decrease of 14,381 tons. The number of passengers carried was 2,994 less and passenger revenue of £10,556 was £2,420 less. Balance on the year's working, after adding sundry credits and providing for prior charges and exchange, is £13,661. Adding £11,453 brought forward makes a total of £25,114, out of which a dividend of 3 per cent. is payable, leaving £6,984 to be carried forward.

La Guaira & Caracas Railway Co. Ltd.—Receipts in the year 1940 amounted to £59,333, an increase of £395, and working expenses at £41,634 showed an advance of £545. Goods (including Government mails and parcels) brought in £55,216, or £1,167 more than in 1939, but the passenger receipts of £1,285 were £451 less. Profit on

exchange produced £17,706, against £16,297. Net balance for the year is £9,515, which, deducted from the debit balance brought forward, leaves a debit balance of £77,047 to be carried forward. Arrears of interest on the 5 per cent. debenture stock up to March 1, 1936, have been paid, plus interest at 5 per cent. per annum to August 31, 1939.

North Central Wagon Co. Ltd.—Revenue from rents and other profits to June 30, 1941, including profits for the fifteen months ended May, 1941, attributable to holdings in the Lincoln Wagon & Engine Co. Ltd., was £81,611, and dividends and interest from investments were £17,174. After debenture interest, directors' fees, and tax provision £43,775 (£8,200) the balance of profit for the year is £18,436 (£16,295). Dividend on the paid up ordinary share capital of £225,000 is 5 per cent., less tax, against nil, and the amount to be carried forward is £16,467, compared with £12,197 brought in.

Ransome & Marles Bearing Co. Ltd.—Net profit for the year to June 30 last was £113,295. Final dividend is 11 per cent., again making a total of 20 per cent. For the previous year, after allowing £35,000 for special depreciation, the net profit was £125,038.

Contracts & Tenders

The North British Locomotive Co. Ltd. has received an order for 33 locomotives and tenders for the Ministry of Supply.

The Sorocabana Railway (Brazil) has ordered ten 2-6-6-2 electric locomotives of 143 tons each for freight and passenger service from the Westinghouse Electric & Manufacturing Company. Delivery is expected for December, 1942.

The Canadian Car & Foundry Company is working on an order for 2,500 box wagons for the South African Railways and Harbours.

The Canadian National Railways have not yet issued the orders for some \$20,000,000 of rolling stock. Placing of this business should give the Canadian Car & Foundry Company a relatively high rate of activity in the months immediately ahead.

A Reuters message from Nairobi states that the Kenya Government will in future place bulk orders for the Colony's total iron and steel imports from America. These will cover requirements for the fighting services, the railways and commerce.

The National Railways of Mexico are considering the purchase of 40 freight locomotives, in three sizes, in the United States, says Reuters Trade Service from New York. Tenders will probably soon be submitted by such builders as the American Locomotive Company and Baldwin Locomotive Works. The National Railways recently took delivery of four rebuilt locomotives bought in the United States, and will take two more.

Railway Stock Market

Stock Exchange markets have shown firmness, and in many directions there was an upward trend in values, resulting as much from absence of selling as from improvement in demand. Sentiment was assisted by renewed gains in British Funds in response to the speech of the Chancellor of the Exchequer indicating that a rise in interest rates is not expected after the war, and that if voluntary savings are increased, and inflation kept in check, fresh taxation may be avoided this year. Home railway prior charges have been firm in accordance with the trend in gilt-edged stocks, but demand showed no material increase, and prices were little changed on balance. Rather more attention was given to high-yielding preference and guaranteed stocks, particularly L.M.S.R. 1923 preference, L.N.E.R. first preference, and L.N.E.R. second guaranteed, which, according to some views, may have scope for good improvement. It is being suggested that the two above-mentioned preference stocks should not be valued on a higher yield basis than 6½ per cent., and that sooner or later, prices may improve to around the 60 level. Other home railway preference stocks also appear to give unduly high yields at current prices, compared with other securities, and there is, of course, every reason to believe that in all cases, with the exception of L.N.E.R. second preference, their full dividends will be

paid. The junior stocks have remained a quieter market, pending full details of the financial agreement, although the prevailing assumption is that there are reasonable prospects of dividends being maintained at last year's rates. Much will depend on the war damage question. If, as is being suggested in some quarters, the damage suffered by, and contributions due from the railways and public utility companies are pooled, fractional improvements in dividends on some of the junior stocks may be possible. In fact, the market may now be taking too pessimistic an attitude in respect of the financial agreement; in view of the optimistic forecasts current a few weeks back, it is hardly surprising that there has been little disposition for activity in home railway stocks to revive pending full details of the scheme.

Great Western ordinary, which was 42 a week ago, has moved back to 40½ at the time of writing, and the 5 per cent. preference remained at 100½, and the 4 per cent. debentures were 106½. L.M.S.R. ordinary reacted from 15½ to 14½, but later became firmer and rallied to 15. L.M.S.R. 1923 preference continued to attract buyers, and on balance improved from 51 to 51½; but at 64 the senior preference failed to keep best prices recorded recently; elsewhere, the guaranteed stock was better at 94½, and the 4 per cent. debentures remained around 101. Among L.N.E.R. issues, the first preference, which was again favoured, was slightly better at 50½, the first and

second guaranteed had a firm appearance at 85 and 75½ respectively, and were fractionally higher on balance. On the other hand, L.N.E.R. second preference was 17½, compared with 18 a week ago. There was again a good deal of activity in Southern junior issues, but whereas the preferred was a point better at 64, the deferred was lower at 13½, compared with 14½ a week ago. Southern debentures were very firm, and the 5 per cent. preference made the better price of 97½. As compared with a week ago, London Transport "C" showed a further reaction from 42½ to 40½. Although there has been a certain amount of profit-taking in junior home railway stocks following the publication of the outline of the new financial agreement, this has been very moderate, and the lower prices are attributed mainly to decreased demand. Many of the prior charges remained firmly held and have continued to be in short supply in the market.

Signs of improving economic conditions in Brazil, and more hopeful views as to the outlook in the Argentine, were reflected by renewed improvement in stocks of South American railways. San Paulo ordinary and Leopoldina debentures were better, and higher prices ruled for a number of debentures of the Argentine companies. Antofagasta preference improved two points to 25. Elsewhere, Nitrate Rails more than held their recent advance. Canadian Pacific improved in price, accompanied by renewed market talk of a possible interim dividend.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1940-41	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices			
			Total this year	Inc. or Dec. compared with 1940		Totals		Increase or Decrease		Highest 1940	Lowest 1940	Sept. 5, 1941	Yield % (See Note)
						This Year	Last Year						
South & Central America	Antofagasta (Chili) & Bolivia	834	31.8.41	£ 22,930 + £ 4,860	35	£ 646,370	607,380	+ £ 38,990	Ord. Stk.	11½	3½	6½	Nil
	Argentine North Eastern ...	753	30.8.41	ps. 174,100 + ps. 3,400	9	ps. 1,771,000	ps. 1,570,200	+ ps. 200,800	"	34	1	2	Nil
	Bolivar ...	174	July, 1941	3,795 - 255	30	26,867	28,630	- 1,763	6 p.c. Deb.	6½	5	6½	Nil
	Brazil ...	2,801	23.8.41	ps. 1,258,000 + ps. 133,000	8	ps. 10,691,000	ps. 8,910,000	+ ps. 1,781,000	Bonds	8	5	6½	Nil
	Buenos Ayres & Pacific	5,082	23.8.41	ps. 2,146,000 + ps. 214,000	8	ps. 15,791,000	ps. 15,291,000	+ ps. 500,000	Ord. Stk.	4½	1	3½	Nil
	Buenos Ayres Great Southern	1,930	23.8.41	ps. 753,000 + ps. 118,000	8	ps. 5,966,000	ps. 5,023,000	+ ps. 943,000	Ord. Stk.	10½	3	6½	Nil
	Buenos Ayres Western	3,700	30.8.41	ps. 1,912,150 + ps. 515,250	9	ps. 15,354,450	ps. 12,915,600	+ ps. 2,438,850	"	8½	2	4½	Nil
	Central Argentine ...	Do.	...	...	...	...	...	...	Dfd.	4	2	4	Nil
	Cent. Uruguay of M. Video	972	23.8.41	21,504 + 2,492	8	168,266	139,703	+ 28,563	Ord. Stk.	34	14	2½	Nil
	Costa Rica ...	188	June, 1941	19,190 + 5,543	52	185,942	206,986	- 21,044	"	23½	14	13	15½
	Dorada ...	70	July, 1941	13,000 - 200	30	88,300	85,200	+ 3,100	1 Mt. Db.	99	97½	97	6½
	Entre Rios ...	808	30.8.41	ps. 247,400 + ps. 46,900	9	ps. 2,662,100	ps. 2,160,300	+ ps. 501,800	Ord. Stk.	4	1½	2½	Nil
	Great Western of Brazil	1,016	30.8.41	7,600 - 400	35	310,800	344,900	+ 34,100	Ord. Sh.	4/-	1½	2	Nil
	International of Cl. Amer.	794	July, 1941	\$448,277 + \$28,594	30	\$3,484,852	\$3,724,776	- \$239,924	"	...	...	...	...
	Interoceanic of Mexico	22½	Aug., 1941	8,580 + 2,135	35	51,825	52,060	- 235	1st Pref.	9d.	9d.	1	Nil
	La Guaira & Caracas...	1,918	23.8.41	30,251 + 4,826	34	847,200	749,304	+ 97,896	Ord. Stk.	2½	1	3	Nil
	Leopoldina ...	483	31.8.41	ps. 490,800 + ps. 82,200	35	ps. 2,698,100	ps. 2,393,600	+ ps. 304,500	"	2 11½	1½	1	Nil
	Mexican ...	319	July, 1941	13,892 + 2,506	4	91,721	10,386	+ 3,506	"	...	...	...	...
	Midland of Uruguay	386	31.8.41	14,389 + 8,069	35	91,721	120,001	- 28,280	Ord. Sh.	2½	1	2½	4½
	Nitrate ...	274	30.8.41	\$3,320,000 + \$75,000	9	\$31,498,000	\$32,989,000	- \$1,491,000	Pr. Li. Sck.	41	36	36½	8½
	Paraguay Central	1,059	July, 1941	65,550 + 129	4	65,550	65,421	+ 129	Pref.	4	1	3½	Nil
Peruvian Corporation	100	28.6.41	c12,723 + c1,600	52	804,130	981,987	- 177,857	"	...	...	...	...
Salvador ...	153½	24.8.41	38,125 + 3,376	34	1,272,492	1,252,758	+ 24,734	Ord. Sck.	50	23	37½	5½	
San Paulo ...	160	July, 1941	3,180 + 1,095	4	3,180	2,085	+ 1,095	Ord. Sh.	15½	1	1	Nil	
Taitai ...	1,346	30.8.41	18,026 + 1,912	9	169,759	145,344	+ 24,415	Ord. Sck.	1	1	2	Nil	
Uruguay North ern	73	July, 1941	1,324 + 376	4	1,324	948	+ 376	"	...	...	...	...
Canada	Canadian National ...	23,560	21.8.41	1,166,439 + 218,926	33	36,919,944	29,987,060	+ 6,932,884	"	...	...	...	...
	Canadian Northern	...	...	...	...	...	...	...	Perp. Dbs.	86	68	92½	4½
	Grand Trunk	...	...	...	...	...	...	...	4 p.c. Gr.	105½	95½	101½	3½
	Canadian Pacific	17,153	31.8.41	1,339,600 + 270,220	35	27,837,800	21,240,200	+ 6,597,600	Ord. Sck.	9½	4½	9	Nil
India	Assam Bengal...	1,329	...	...	...	...	...	...	Ord. Sck.	99½	71	100	3
	Batal Light ...	202	30.6.41	5,220 + 2,670	13	51,990	33,127	+ 18,863	"	...	...	...	...
	Bengal & North Western	2,086	July, 1941	251,700 + 24,153	18	1,059,825	1,065,348	- 5,523	Ord. Sck.	283	234	305	5½
	Bengal-Nagpur	3,269	31.5.41	283,725 + 21,334	9	1,509,300	1,552,418	- 43,118	"	96	83½	100½	4
	Bombay & Baroda & Cl. India	2,986	20.8.41	214,125 + 7,500	20	4,086,600	3,815,475	+ 271,125	"	108	99	108½	5½
	Madras & Southern Mahratta	2,939	30.6.41	201,825 + 48,104	13	1,817,191	1,655,529	+ 161,662	"	104	97½	102½	7½
	Rohilkhand & Kumaon	571	July, 1941	54,975 + 4,907	18	247,875	252,087	- 4,212	"	284	238	300	5½
	South Indian	2,500	20.5.41	140,378 + 13,073	7	652,953	626,491	+ 26,462	"	93½	83	97½	4½
Various	Beira ...	204	June, 1941	78,601 + 2,317	39	652,953	37,521	+ 14,990	Pr. Sh.	7½	1	1	Nil
	Egyptian Delta ...	610	20.6.41	6,827 + 2,317	12	52,511	37,521	+ 14,990	B. Deb.	53	44½	66	5½
	Manila ...	...	...	...	...	...	...	...	Inc. Deb.	88	80	87½	6½
	Midland and W. Australia	277	Apr., 1941	16,133 + 113	43	150,334	131,395	+ 18,938	"	...	...	...	...
	Nigerian ...	1,900	31.5.41	55,965 + 26,234	9	488,613	342,694	+ 145,919	"	...	...	...	...
	Rhodesia ...	2,442	June, 1941	454,594 + 72,372	39	4,217,610	11,650,613	- 7,433,003	"	...	...	...	...
	South Africa ...	13,291	19.7.41	781,775 + 183,876	44	11,650,613	10,485,800	+ 1,164,813	"	...	...	...	...
Victoria ...	4,774	Apr., 1941	999,841 + 183,876	44	...	...	...	"	...	...	...	...

Note. Yields are based on the approximate current prices and are within a fraction of ½
† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffic is given in pesos